ABSTRACT OF

An Address

ON

THE IMPORTANCE OF POST-GRADUATE STUDY.

Delivered at the Opening of the Winter Session of the Post-Graduate College, West London Hospital, on Oct. 13th, 1903,

BY SIR WILLIAM SELBY CHURCH, BART., K.C.B., M.D. OXON.,

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

[IN the introductory portion of his address Sir William Church gave an outline of the evolution and history of the Medical Acts. He said that in the year 1834 a committee of the House of Commons, with Mr. Henry Warburton as chairman, was appointed to inquire into the laws, the regulations, and the usages relative to medical education and practice in the United Kingdom. This committee, however, did not present any report. In 1844 a Bill was brought in by Sir James Graham which was practically the same as that which was passed in 1858 as the Medical Act. Sir William Church then continued :]

It is almost impossible for us to conceive the state of, I will not say the medical profession, but of medical practice in the country at the time when the select committee took evidence. Apparently anyone could call himself surgeon or apothecary and could obtain equal advantages with those who held diplomas from the corporate bodies like the Royal Colleges and had undergone an examination and possessed a certain amount of education. One of the questions which most deeply moved the mass of the profession then as now was, Should there be penal laws which gave a monopoly of practice to those who held qualifications and prevented their being interfered with by the unlicensed? In my opinion our fathers acted wisely and I feel sure that in our day our legislature will be equally sensible; to me it appears that it would be a most unwarrantable interference with the personal liberty we all value so highly for the State to say that you shall not receive advice as to your health and well-being from any person from whom you think you may obtain benefit. We who are conversant with disease and its nature and the pathological conditions on which it depends can hardly place ourselves in the position of the laity; their complete ignorance causes them still to consider disease as something foreign to the body which can be driven out by sufficiently powerful means and they fail to recognise that the majority of the chronic ailments they suffer from are due to changes and degenerations in their own tissues which it is beyond the power of physicians to remove.

There is no subject on which the general public is so ignorant and credulous as medicine and this is not to be wondered at when we consider the history of our art and how it arose. The earliest medical practitioners of whom we have any knowledge, the family of the Asclepiads, claimed to be descended from a god and that something divine was attached to them. Although in the brightest times of Greek learning medicine, as we see from the writings of Hippocrates, was singularly free from superstitious observances, yet the part played in the public and domestic life of Greece by oracles, dreams, omens from birds, beasts, and the phenomena of nature must have caused divination to play an important part in illness. In the later days of Greek learning, when the knowledge of anatomy and therapeutics was at its highest level, in the times of Galen and Aretæus, we know from their writings that methods which we can only regard as superstitions were in use in the treatment of the sick. The accounts of miraculous instances of healing in the early days of Christianity and the virtues ascribed to the relics of holy men at a later period still fostered the belief that the art of healing was the gift of God and this belief is by no means yet extinct. Healing by suggestion occupied a very prominent although unrecognised position in the practice of mediæval times. Even William Harvey appears to have had faith in the therapeutic virtues of the bone of a stag's heart, and touching for the king's evil persisted in this country until the reign of George I. Those who are students in folk-lore know how deeply the belief in witchery and sorcery had permeated all classes of men and was fostered by the total absence of what I may call the scientific mind among the learned of the Middle Ages. They devoted their mental powers to metaphysical questions and, like the Greek philosophers, entirely neglected experimental investigation into the phenomena of nature.

I fear you will think that I have wandered far from my subject. I thought that the brief sketch which I have given you of the genesis of the Medical Act and the changes which have taken place in the position and education of our profession would be interesting at the present time when the development of medicine appears almost to necessitate fresh educational methods for the fit preparation of those who intend to make it the study and business of their lives.

Of the importance of an acquaintance with the sciences, such as physics and chemistry, as a preparation for the study of medicine we are all agreed, but we are not equally of one mind how that desirable knowledge should be acquired. To me it seems advisable that the preliminary education before students enter on their medical course should necessarily embrace the principles of chemistry and physics. A student then would enter on his anatomical and physiological studies prepared by his earlier work to make the best use of his time. Biological chemistry, pathology, and bacteriology demand so much time and are so valueless unless a man has a certain amount of practical experience while studying them that the present five years course would not enable any unless they are exceptional men to obtain more than a mere smattering of any of them. We must remember that for what may be termed the highest branch of medicine, sanitary science and public health, a post-graduate course is now required, only those who hold medical qualifications being admissible to the examinations held by the various licensing bodies for the diploma of public health.

By a process of natural development even more than by the artificial and arbitrary regulations made by corporate bodies the medical profession long ago fell into three great classes more or less distinct—physicians, surgeons, and apothecaries, the latter of whom at a subsequent date developed into general practitioners. The complexity of medicine is now so great that although these three classes remain fairly well marked, the two first are being subdivided into smaller groups. It has, however, been wisely decided by the legislature that no one should be admitted to the Medical Register who has not passed a competent examination in the three subjects of medicine, surgery, and midwifery, consequently it is not until after we have been admitted to the ranks of the profession that we specialise in any way. It is evident that it is impossible for anyone to attain to the highest degree of technical knowledge and skill in all departments. Good general practitioners are, as a rule, exceedingly well up in their work. I am filled with admiration when I consider how seldom they are found incompetent. Think of the responsibility which they have—liable to be called on (especially those practising in the country districts) to treat single-handed every sort of emergency, sudden illness, a broken limb, a general smash, an alarming post-partum hæmorrhage, or a placenta prævia, or as medical officer of health to combat a sudden outbreak of epidemic disease. Yet, competent as most of them are to deal with these emergencies of practice, they would be the first to repudiate the title of specialists. In the progress of the evolution of medicine the differentiation of physicians and surgeons naturally took place and all honour must be given to the surgeons who have raised their art from the position of a handicraft subservient to the physicians to that in which it now stands, higher possibly in the estimation of the public than medicine.

Specialism and specialists are terms which are very much misused nowadays. The true specialist, whether he be physician or surgeon, is one who with a wide knowledge of all has paid especial attention to some particular branch or branches of medicine, such as sanitation or public health, mental diseases, gynæcology, ophthalmology, &c., not, as the public appear to think, the man who has fixed his attention on a single organ of the body. In surgery, where to a greater extent than in medicine manual dexterity is required, surgeons in large centres of population are able to make particular study of certain classes of operations in which by constant practice and most careful attention to

details they are enabled to improve the methods and to obtain greater success. It is the success of these honoured and honourable men which has led the public to their demand for specialists—a demand which meets a ready response, although I fear the quality of the article supplied is very inferior to that which the public think they are obtaining. A certain number of these so-called specialists are no doubt honest and honourable men, but by directing their thoughts exclusively to a limited range of subjects have lost all sense of proportion, and I fear that no inconsiderable number trade rather on the ignorance of the public than on any superior knowledge of their own. Of all quacks the worst are those who are duly qualified to practise, for by their position as medical men they bring discredit on the profession. All of us who have reached a certain age have seen how these quacks vary with the fashion of the day; at one time all ills the flesh is heir to arise from acidity or gout and in the other sex from versions, malpositions, and ulcerations of an internal organ; at another time adenoids or supposed phimosis is at the root of all disorders of childhood, and at another exploratory operations on the abdomen are the panacea for all internal derangements. Mankind is alike everywhere and in all classes; its credulity does not grow less with advancing times; if we have lost our belief in miracles and relics we need only look at the advertisement pages of any newspaper to see that our credulity has only taken another form.

The time which can now be allotted in the five years course is too short to enable the average man to spend sufficient time in clinical and practical work. It is essential for the student not only to have general experience in the wards but to have attended the special departments and if possible to have held the post of clerk or dresser in them. Those who are fortunate enough to obtain posts in our large hospitals, especially those with medical schools attached, are virtually enjoying post-graduate study of the best kind, but it is a minority of men who can obtain the advantages of holding such posts. This country, as in other educational questions, has, I am afraid, been behindhand in organising post-graduate teaching of any sort. In the United States of America a large proportion of those attending the arts course at the Johns Hopkins University are post graduates and I am informed that at Baltimore nearly one-third of the medical students are qualified men. The first attempt at organising anything of the nature of medical post-graduate study in London was as long ago as 1888 or 1889; a notice used to appear in the medical papers annually above the signature of Dr. J. Fletcher Little, but it was not until about ten years ago that the West London Hospital course was started. The earlier attempts appear to have failed mainly because they took the form of lectures and did not embrace hospital practice. It is in this respect that the West London school is able to offer so much more valuable assistance to qualified men than such institutions as the Polyclinic or the other hospitals at which occasional lectures or demonstrations are given. You have gradually built up a complete medical school and by conning yourselves to qualified men have not interfered with, or given cause for jealousy to, any of the existing medical schools. The practice in the hospitals attached to the great medical schools in London is open to qualified men but it is not possible to meet their requirements. The teaching for the junior students is necessarily different from that most suitable for those further advanced. Any considerable number of senior men attending the clinical practice of our medical schools has always, and rightly, been resented by the junior students.

That there is abundance of room for post-graduate teaching no one can deny; it is, in truth urgently needed. After qualification a man makes up his mind in what department he prefers to do special work. If he intends to enter on general practice he knows in what subjects he is weakest and can obtain with you the opportunity and assistance for strengthening his knowledge and supplying his deficiencies, for there is no way by which this can be attained equal to closely following the practice of a large general hospital. There are many subjects now which it is essential for a man to know something of, particularly those which are not suitable for him to spend much time over as a junior student. As instances I might mention the application of electricity for the diagnosis and treatment of diseases or injury, the manipulation necessary for the examination of gynæcological, orthopædic, or ophthalmic cases. If opportunities for increasing their stock of knowledge are advantageous to those just entering on their professional life they are no less so to those who have been placed in circumstances which rendered it difficult either to gain new knowledge or to keep up that which they possessed. Especially useful is it to those who have joined our public services; from the nature of their work it is impossible for them in ordinary circumstances to gain varied experience for want of opportunity. In times of peace the work of the officers of the Royal Army Medical Corps is necessarily without much variety. Even if attached to a large home hospital the field for observation is much more limited than that presented in large civilian ones and excepting during war time the larger operations in surgery very rarely come under their notice. Nothing struck me more forcibly when visiting the hospitals in South Africa than that in many instances the older and higher in the service the officer was the more of a soldier and the less of a medical man he appeared to be. This doubtless arises from the large amount of official non-medical work that they have to get through. A principal medical officer's duties are so largely executive that some of them scarcely did any true medical work themselves. This disability which many of the officers of the Royal Army Medical Corps felt and complained of is now, I trust, remedied, as the Advisory Board has recommended that study-leave should be periodically granted to all officers to enable them to attend civilian practice at intervals during their career. By doing this we are adopting a course which has been in practice in other countries. In the naval service the position is much the same. Commissioned to a ship the complement of which consists of healthy men in the prime of life the medical officer's opportunities for gaining experience are limited. It has been my lot as one of the assessors of the Gilbert Blane medals to read the logs of a considerable number of naval medical officers, and excepting when they have been on active war service there is a great monotony in their medical reports. No doubt they, and the officers of the Royal Army Medical Corps when on foreign service, have opportunities of studying certain forms of tropical disease, but here again the similarity of cases is such that the temptation to fall into a rule-of-thumb treatment of them is hard to resist; nevertheless, I should not be doing justice to a distinguished branch of our profession if I did not bear witness to the excellence of some of its work. Naval officers, I am informed, have not been slow to avail themselves of the opportunities which you offer them and I feel sure that those of the sister service will do the same when it is known how much they can learn here.

In case there should be anyone present who may think that in the remarks I have made I have only had present to my mind the advantage of our profession and not given due attention to the purposes for which this hospital was founded and for which it is supported—the relief of sickness and suffering in its neighbourhood—I should like to say that there can be no greater benefit conferred on the patients who receive relief at an hospital than the attachment to it of a school of clinical medicine. Teachers must always be learners and there is no incentive to a teacher so great as the presence of students anxious to learn. You can have no greater safeguard against mismanagement or against slackness and inattention on the part of the staff than the presence of students. They form a body of critics, kindly it may be, but severe and uncompromising, ready to expose the shortcomings and failures of their teachers. I can unhesitatingly say that the character and quality of the medical treatment in hospitals with medical schools attached to them compare favourably in every way with those in which the work is done without the publicity which necessarily exists when clinical teaching is carried out in the wards and out-patient departments. You have an excellent staff, earnest in their work and anxious to maintain and to increase the reputation of your hospital. You have the material and a certain amount of means for carrying out educational work. I trust that in the near future it may be possible for the lay authorities to give increased facilities for teaching and research, and I would venture to remind the supporters of this institution that whilst a few more beds or an increased number of out-patients might relieve a certain small amount of local sickness and suffering that would hold but a small proportion to the benefit which increased knowledge obtained within these walls might confer on suffering humanity throughout the world. In conclusion, I wish all prosperity to the West London Hospital and its Post-Graduate School.

An Address

ON

CHARLES WHITE, F.R.S.: A GREAT PROVINCIAL SURGEON AND OBSTETRICIAN OF THE EIGHTEENTH CENTURY.

Delivered before the Medical Society of Manchester on Oct. 7th, 1903.

BY CHARLES J. CULLINGWORTH,
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[IN his introductory remarks Dr. Cullingworth referred to his former period of residence in Manchester and to his having held the offices of honorary librarian and afterwards of honorary secretary of the society for a continuous period of 13 years. He then said:]

For many years I have had it on my mind to gather together such materials as are obtainable for a somewhat fuller account than has yet appeared of the life and work of one of the greatest, if not the greatest, amongst the medical worthies of Manchester, Charles White, the friend of John Hunter, the principal founder of your famous infirmary, the founder also, along with the two Halls (Edward and Richard), of the Lying-in Charity, now St. Mary's Hospital, a pioneer in conservative joint surgery, and, above all, the emancipator of the lying-in woman from the deadly dangers to which she had been condemned by the accumulated traditions of centuries of ignorance and superstition. Other writers have to a certain extent forestalled me. In Mr. W. Whitehead's presidential address before the meeting of the British Medical Association held here last year, and also in the address delivered by Dr. D. Lloyd Roberts as President of the Section of Obstetrics and Gynæcology at that meeting, some account was given of Charles White and of his work as viewed from the respective standpoints of the two speakers. Dr. E. M. Brockbank has also got together a very considerable amount of information about Charles White in connexion with the valuable series of biographical sketches of the older physicians and surgeons to the Manchester Infirmary which he is contributing to the pages of the *Medical Chronicle*, and although I desired him by no means to disturb on my account the order of publication of his series of biographies he generously insisted on withholding his sketch of White until after this address had been delivered.

It has been erroneously stated that Charles White was born in Warrington. He was in reality born in Manchester of parents who resided there; he was educated there, practised his profession there, and died at only a short distance away—namely, at Sale in Cheshire. His father was Dr. Thomas White, who was born on April 9th, 1696, and who, after practising his profession in King-street in a house in which his son succeeded him, retired to his country cottage at Sale and died there on July 20th, 1776, at the age of 80 years. The house in King-street just mentioned was situated on high ground at the corner of Cross-street, on the site afterwards occupied by the town hall, now the home of the free reference library. Contemporary drawings show the house to have had in front of it a terrace approached from the street at each end by a flight of steps and to have been quite the most handsome and conspicuous house in the street.

From the fly-leaf of an old "breeches" Bible, "imprinted at London by Christopher Barker, printer to the Queen's Majesty, 1578," and discovered about 20 years ago in the collection of a secondhand bookseller, it appears that the book came into the possession of the White family about 1728, the year of Charles White's birth, and was thereupon made the repository of the family records. These records commence with an account of Dr. Thomas White's ancestry. His grandfather was "Charles White, Esq., of Benall Abby, near Griersley [Greasley], Nottinghamshire," who was member of Parliament for the county of Nottingham and "Colonel of a regiment under the King in the grand rebellion when he lost his estate." Colonel White had a son Thomas, who was "baptised at Griesley, 28th Dec., 1656," practised as an attorney at Manchester, and died in 1702, when his son Thomas (Charles White's father) was but a child of six. The record goes on to say that Dr. Thomas White and his wife Rosamund had three children—Charles, Sarah, and Elizabeth—born in 1728, 1730, and 1739 respectively.[1]

While still a mere boy Charles was allowed to assist his father in his midwifery practice. After a time he was sent to attend lectures and hospital practice in London and there it was that he formed the acquaintance of John Hunter, which ripened into a lifelong friendship, the two young men going together to the lectures of John Hunter's elder brother, the scarcely less celebrated Dr. William Hunter, then at the height of his reputation as a teacher of anatomy in London. White seems to have begun his studies in London in or about the year 1748, when he was at the age of 20 years. He cannot have been very long in London, for in 1752 he was not only settled in Manchester and agitating for the establishment of a hospital there, but he had also in the meantime supplemented his London experiences by passing a winter at the University of Edinburgh, already becoming famous as a school of medicine. How far his character and future career may have been influenced by his association with John Hunter there is now no means of knowing. I searched in the library of the Royal College of Surgeons of England and elsewhere for any notes, letters, or other records bearing on that association but in vain. On his return to Manchester he joined his father and very soon established a reputation that led not only to a very considerable practice within the town itself but also to an extensive consulting practice in the surrounding district. He was, as Allen's well-known portrait of him indicates, a man of great force of character and immense energy and his powers of physical endurance were quite remarkable. "Even in advanced age," we are told, "he was capable of performing without fatigue very long journeys on horseback and of bearing without injury to his health exposure to the most inclement weather. He required little sleep and was for the greater part of his life an early riser." With these physical qualifications added to mental endowments that raised him far above the majority of his medical contemporaries, it is no wonder that by the time he had been settled 20 years in Manchester he had come to be considered as the head of his profession in the north of England. He remained in almost undisputed possession of this pre-eminence many years, quite up to the close of the century.

[Dr. Cullingworth here quoted extensively from de Quincey's "Autobiography," chiefly in reference to Charles White's medical attendance on Mrs. Schreiber, who had acted as companion and chaperon to Lady Carbery before her marriage to the fourth Baron Carbery, an Irish peer who had a seat at Laxton in Northamptonshire. He then continued:]

It must have been very soon after his return from Edinburgh to rejoin his father in Manchester that the project of a public hospital or infirmary for Manchester began to be discussed, for in the spring of the year 1752, Mr. Joseph Bancroft, evidently a friend and admirer of the young and enthusiastic surgeon, offered to defray all the expenses of such an institution for one year, provided Charles White, who, let it be remembered, was not yet 24 years of age, would consent to give his professional

[1] There are some curiously contradictory statements in reference to the family of Thomas and Rosamund White. Thus, in a "release" executed April 5th, 1777, by a brother-in-law of Charles White, George Johnson, there occur the following words: "And whereas the said marriage [i.e., between Thomas White and Rosamund Bower] soon afterwards took effect and there were issue thereof Charles White, now of Manchester, aforesaid surgeon, and Sarah, late wife of the said George Johnson, and *no other issue*," &c. The question, however, as to there having been a daughter Elizabeth appears to be finally set at rest by the following extracts from the registers of the Manchester Cathedral kindly supplied to me by Dr. Brockbank: "Baptism: Sept. 27, 1739; White, Elizth., dau. of Thos. and Rosamund, surgeon." "Burial: Feb. 22, 1744; White, Elizth., dau. of Doctor Thomas." Again, there appeared in *Manchester Notes and Queries* of August 12th, 1899, a letter signed "Elizabeth White" in which it is stated that Charles White had two younger brothers named respectively William and John, from the latter of whom the writer claimed direct descent, his son having been, she says, her grandfather. The above extract shows this statement to be incorrect. Corroborative testimony to its inaccuracy is furnished by a deed of gift to Charles White from his mother, dated May 1st, 1754, and now before me, in which she speaks of him as her "only son, Charles," and also by Charles White's description of himself on the monument he erected at Sale to the memory of his father, as his father's "only son." The error, no doubt, arose from the fact of Charles White having had a cousin of the same name, one of the four sons of William White, his father's brother. The names of the four as ascertained from a copy of the will of one of them were William, Samuel, Charles, and John respectively.

assistance. The proposal was accepted and a small house was hired in Garden-street, Shudehill, by way of experiment. A few other gentlemen joined Mr. Bancroft, the project was made public, and at a general meeting of the subscribers held in December, 1752, it was unanimously resolved to erect with all convenient speed an infirmary capable of containing 40 beds. Accordingly, on May 20th, 1754, the foundation of the new building was laid and in April of the following year it was ready for the reception of patients. The story of the Manchester Infirmary has been often told, and never better and more clearly than in the series of papers by Dr. Brockbank, now in course of publication. It is unnecessary, therefore, for me to enlarge upon it here. I need only say that in the first printed list of officers containing the names of three honorary physicians, three honorary surgeons, and two honorary surgeons extraordinary, the list of surgeons is headed by the name of Charles White, and that he remained an active member of the staff for 38 years—namely, until August, 1790, when after an unfortunate and long-continued controversy he, together with five colleagues, resigned his post, the alleged reasons being that the wishes and opinions of the medical faculty had lately been treated with neglect and that alterations of which they gravely disapproved were being made in the constitution of the charity.

On Feb 18th, 1762, when in his thirty-third year, White was elected and admitted a Fellow of the Royal Society and on the same day he was admitted a member of the corporation of surgeons, now the Royal College of Surgeons of England.

In 1781 the Manchester Literary and Philosophical Society was founded. There resided at that time in and about Manchester a small band of literary and scientific men who had for some years been in the habit of meeting at the house of Dr. Percival and elsewhere and had now decided that the time had come to organise themselves in a more formal manner. The first secretary of the society was the future biographer of Charles White, Thomas Henry, F.R.S., "Magnesia Henry," as he was called on account of his having discovered a new method of preparing magnesia alba (calcined magnesia). Henry was 78 years of age when his biography of White was written. White was elected one of the earliest vice-presidents and continued to hold office in that capacity for many years. He read several papers before the society, most of which were published in its memoirs. In 1783 he joined in the establishment of a "College of Arts and Sciences," at which instruction was to be given and lectures were to be delivered on those subjects. It is believed to have been the first institution of the kind started in the provinces. White and his second son, Dr. Thomas White, took charge of the anatomical department and delivered, up to 1788,[2] courses of lectures on anatomy which they were enabled to illustrate from the series of anatomical preparations, upwards of 300 in number, that they had gradually collected. It was to this collection, afterwards, in 1808, presented to St Mary's Hospital and unfortunately for the most part destroyed by a fire which occurred there in February, 1847, that de Quincey refers in one of the later chapters of his "Autobiography."

[Dr. Cullingworth here again quoted from de Quincey chiefly in reference to an embalmed subject in the museum. He also gave an account of the career of a highwayman whose skeleton was in the museum, after which he said:]

Owing in great measure to the advocacy and exertions of Charles White there was founded on May 6th, 1790, a lying-in charity for attendance upon poor married women at their own homes. This event has naturally a peculiar interest for me on account of my long connexion with St. Mary's Hospital, into which the lying-in charity eventually developed. The first medical officers elected included as consulting staff Charles White himself, his son Thomas, and the two Halls, Edward and Richard. They received the uncouth appellation of "men-midwives extraordinary." In 1795 a house was taken near the old bridge, Salford, into which a few in-patients were admitted, and in the year following a large building situated near the New Bailey prison, also in Salford, which had been originally designed for a hotel but had never been licensed, was bought for about two fifths of what it cost the proprietor and converted into a lying-in hospital. But after a few years, chiefly, it is said, owing to want of funds, the number of in-patients gradually diminished, until in 1814 their admission entirely ceased, the charity reverting to its original function of providing attendance at the patients' own homes. It was in connexion with this charity and in the first year of its existence that Dr. Thomas White, the second son of Charles White, delivered the first course of lectures to midwives that had been given in Manchester. He continued to deliver a course annually up to the time of his death in 1793. The lectures in 1794 were delivered by his father. For midwifery was a subject in which Charles White was deeply interested. During the first half of the eighteenth century the practice of midwifery was almost entirely in the hands of extremely ignorant women and it was only in difficult cases that men were called in. White, who for some time after commencing practice had the care of all the parish poor not only of Manchester but of a large district around it, had his attention called very early in his career to the disastrous effects upon the lying-in woman of the mode of management then in vogue and soon determined to do what he could towards bringing about a change. He may in fact be said to have entered forthwith upon a beneficent crusade of which the results soon became manifest and although there is even yet vast room for improvement the women of this country are still reaping the benefit of the revolution he was largely instrumental in effecting. Let us hear his own description of the mode of treatment of the lying-in woman that then prevailed. "When the woman is in labour she is often attended by a number of her friends in a small room with a large fire, which, together with her own pains, throw her into profuse sweats. ..... If the woman's pains be not strong enough her friends are generally pouring into her large quantities of strong liquors mixed with warm water and if her pains be very strong the same kind of remedy is made use of to support her. As soon as she is delivered, if she be a person in affluent circumstances, she is covered up close in bed with additional clothes, the curtains are drawn round the bed and pinned together, every crevice in the windows and door is stopped close, not excepting even the keyhole, the windows are guarded not only with shutters and curtains but even with blankets the more effectually to exclude the fresh air, and the good woman is not suffered to put her arm, or even her nose, out of bed for fear of catching cold. She is constantly supplied out of the spout of a tea-pot with large quantities of warm liquors to keep up perspiration and sweat and her whole diet consists of them. ..... Amongst the poor people who live in cellars and upon clay ground floors the air is still made worse by the dampness and closeness of their houses, and the want of clean linen and cleanliness in general. Those who live in garrets are also in no better a situation, for the putrid miasmata of several families inhabiting the lower part of the house ascend to them. ..... In a few days after delivery the patient is perhaps seized with a shivering fit, and the nurse is surprised, as she protests she has not had the least waft of cold; more clothes are heaped upon her; spirituous liquors and hot spices are given her to throw off the cold fit, which most certainly increase the succeeding hot one." Against these barbarities Charles White strenuously set his face. "The evil," says his biographer, Mr. Henry, "was indeed ..... great ..... and the mortality truly alarming. To overcome the influence of prejudice and long-established custom required a manly spirit and steady perseverance united with real professional ability and the possession of the public confidence. With these requisites Mr. White finally accomplished his object. His patients, instead of being confined to their bed for above a week, were permitted to rise on the second day; the room was well ventilated and kept cool and no cordials or vinous liquors were allowed except when absolutely necessary and under proper restrictions. The good effects of these changes were so evident as to carry conviction wherever they were introduced. The miliary fever almost entirely disappeared and the puerperal soon became of comparatively rare occurrence." I have quoted Mr. Henry's testimony at length, because it is that of a contemporary, and a practising member of the medical profession, as well as being that of a distinguished man of science. After carrying out for 20 years in a full midwifery practice, embracing much consulting work and personal attendance upon women of every rank or condition of life,[3] the enlightened principles just enunciated, White published his celebrated book on the Management of Pregnant and Lying-in Women and so diffused his doctrines throughout the country. The work had

[2] The opening lecture of the scholastic session in 1786 was delivered on Oct. 8th by Charles White. (Axon's Annals of Manchester, 1886.)

[3] See Preface to White's "Inquiry into the Nature and Causes, &c.," Part II., March, 1801, pp. x. to xii.

an immediate success. One edition followed quickly upon another. Its fame and influence spread beyond the writer's own country. An American edition was published at Worcester, Massachusetts, in 1773, and the book was translated first into French and subsequently into German. "Perhaps, indeed," says Mr. Henry, "few medical books have been productive of more important reform in medical practice, or of more comfort and safety to the subjects for whose benefit it was intended."

I purpose to speak presently of White's published writings in their chronological sequence, but as this, the most important of them, has now been mentioned, it will be convenient to make here any further observations I may have to make about this remarkable book, although in doing so it will be taking it out of its proper order. The author has himself, in an appendix to the second edition (reproduced also in subsequent editions), summarised what he conceives to be the "most material improvements" which his book has been a means of introducing into the management of pregnant and lying-in women. They are: (1) the use of a cold or tepid bath during pregnancy and also during lactation; (2) permitting the shoulders of the child to be expelled by the labour pains only instead of pulling at the child's head the instant it is born, which latter not only prevents the shoulders from making their proper turns, so as to accommodate themselves to the dimensions of the pelvis but also induces flooding and after-pains from retention of the placenta and irregular uterine contractions[4]; (3) allowing the circulation between the child and placenta to cease spontaneously instead of immediately intercepting it by tying the navel string as soon as the child is delivered; and (4) placing the woman in an upright position as early after delivery and as frequently as possible.

The first three of these innovations require no comment, they have long ago been generally accepted and are now regularly inculcated by every obstetric teacher. With regard to the fourth, however, a few words of explanation seem desirable. It was White's strong conviction that freedom from puerperal fever is very closely connected with this question of posture. "Writers," he says, "are still much divided in their opinions of the cause, and even of the nature of the puerperal fever," and "it is obvious," he continues, "that till some greater certainty be obtained with regard to the cause and nature of this disease all attempts towards a rational method of prevention or cure will be vain. There are, however, some particular symptoms attending it which if accurately investigated may greatly assist our inquiries." He then speaks of a rapid pulse as being the most constant and distinguishing symptom and proceeds to draw an inference which shows him to have been a thinker as well as an observer. "Every surgeon," he says, "conversant with [his] business, knows that [this symptom] never fails to attend absorption of matter from abscesses or ulcers, whatever be the other concomitant symptoms. ..... If to these considerations we add that, as the puerperal fever is more fatal in large cities and crowded hospitals than in places where the air is more open and pure, so is the fever occasioned by the absorption of matter ..... [and] that as the puerperal fever does not appear till after delivery, so neither does absorption of matter from an abscess till it be opened and the air have access, we may, I think, with a good degree of certainty conclude that the absorption of matter is the immediate cause of the puerperal fever as well as of that consequent upon abscesses and ulcers." In other words, he recognised, long before Sir James Simpson wrote his classical essay on the subject, the close analogy between the fever that followed surgical operations and the fever to which lying-in women were liable. White was not long before he translated these views into practice and adopted means of preventing and treating puerperal fever founded upon them. "The horizontal position," he says, "to which women are so frequently confined after delivery, greatly favours an absorption of the lochia." "The lochia, stagnating in the womb, and in the folds of the vagina, soon grow acrid, for it is well known that the mildest humours in the human body, if suffered to stagnate, become so, as soon as the air has access to them. These are in part absorbed by the lymphatics." To prevent this absorption he advises that "in a few hours after delivery, as soon as the patient has had a little rest, she should sit up in bed, with a bed-gown thrown over her shoulders. ..... [She] should lie very high with her head and shoulders and should sit up in bed many times in a day, especially when she takes her food and as often as she suckles her child. ..... The sooner she gets out of bed after her delivery the better, even on the same day if possible; she should not defer it beyond the second or third at the furthest." "This frequent upright posture," he says, "is of the utmost consequence and cannot be too much enforced; it prevents the lochia from stagnating, the stools and urine from being too long retained, and promotes the contraction of the uterus, together with that of the abdominal muscles.[5] Notwithstanding his insistence on this matter of posture he by no means neglects other hygienic precautions. The windows are to be opened; there is to be no board or other contrivance to block up the chimney; the curtains are not to be closely drawn; the lying-in chamber is to be in every respect as sweet, as clean, and as free from any disagreeable smell as any other part of the house; the room is to be brushed every day and the carpets are to be taken out to be cleaned and aired; the patient is to be often supplied with clean linen and clean, well-aired sheets are to be laid upon the bed. "For," says he, "cleanliness and free, pure, and in some cases, cool, air are the greatest necessaries in this situation, and upon the strictest examination it appears evident to me that there never was a miliary eruption without a sweat nor a puerperal fever without either foul air, an accumulation of excrements in the intestines, or confinement of the patient to a horizontal position, ... except in cases where violence had been used ..... or from some very great imprudence." In his treatment of puerperal fever when it has actually occurred he is still guided by the same principles. "Every method recommended ..... as preventive of this disorder should now be enforced in a higher degree in order to its cure." And the chapter concludes with a remarkable paragraph quoted by Dr. Lloyd Roberts in his address last year but well worthy of being repeated. "I must not," he says, "omit to mention in this place the good effects I have experienced from emollient or antiseptic injections into the uterus by means of a large ivory syringe or an elastic vegetable bottle. In those cases when the lochia have become acrid or putrid, and by being absorbed into the circulation have served as a constant *fomes* to the disease, I have by this means known the fever much assuaged and in many cases wholly extinguished; for though, as I have before observed, the quantity of the lochia is not to be much regarded the quality of this discharge is a matter of infinite importance." White evidently recognised the contagiousness of puerperal fever and although the disease had not been wholly absent from his practice he was able to declare that out of the large number of lying-in patients whom he had himself delivered he had never lost one nor, to the best of his recollection, had life in one single case been greatly endangered from puerperal fever in any of its forms. No one can, I think, read these extracts (which could easily have been multiplied) without recognising that White's views and practice were far in advance of his time. The whole book, indeed, teems with startlingly modern

[4] The rapid extraction of the child's body after the head is expelled is a practice fraught with evil, it is one which the writer has witnessed frequently, notwithstanding the strong language used upon this subject and the able exposition given by our late highly gifted townsman, Mr. Charles White. The temporary cessation of the expulsive efforts after the extrication of the head is of the utmost importance to the female, and the abrupt removal of the stimulus of distension given to the os uteri, by the shoulders and body of the child, leaves the organ without excitement before it has recovered its power of contraction. Fainting and hæmorrhage frequently occur in consequence of the hasty extraction of the child's body and result from the sudden removal of uterine and abdominal distensions (T. Radford: On Inversion of the Uterus, Dublin Journal of Medical Science, 1837). The practice of using force to hurry the shoulders and body of the child through the os externum as soon as the head was born is now very generally laid aside. There can be no doubt that this imprudent conduct often brought on a retention of the placenta (See White's Treatise on the Management of Pregnant and Lying-in Women. S. Merriman: Difficult Parturition, new edition. London, 1838, p. 152).

[5] No doubt much discretion is needed in carrying out the views here inculcated. Of course, no one, as I have said elsewhere, "would dream of permitting so early an assumption of the sitting posture in the case of patients exhausted either by profuse hæmorrhage or by a greatly protracted or difficult labour." But surely there is much to be said against the present custom of insisting upon the horizontal posture for several days after a normal delivery and the plan advocated by White is, after all, only an application to midwifery practice of the great antiseptic principle of drainage. Speaking on this subject in 1889 I defined my own position as follows: "I have not," I said, "in my own practice dared to go quite the length that Charles White recommended, but I do allow patients who have had a natural labour to sit up in bed occasionally for a few minutes at a time on the second or third day and my teaching on this point is in accordance with my practice."—Address on opening the Section of Obstetric Medicine at the Leeds meeting of the British Medical Association, Brit. Med. Jour., August 17th, 1889.

suggestions and may be read from beginning to end with advantage even to-day.

The first paper that White communicated to the Royal Society was read on March 27th, 1760, and consisted of an account of a successful operation for ununited fracture.[6] A second paper, also contributed in 1760, described a case of dislocation of the thigh in an adult produced by external violence. His next paper was read before the Society in February, 1762, the same month in which his election took place, and gave an account of the value of sponge as a topical application in the arrest of hæmorrhage. He did not lay claim to the merit of being the first to use sponge for this purpose but he was not aware that it had previously been employed to arrest hæmorrhage from the larger arteries. He declared that the inside of fresh and thoroughly dried sponge was, besides being perfectly easy and safe in its application, more certain in its effects than even the ligature itself. This method was largely superseded by the tenaculum invented a few years later by Mr. Bromfeild and White himself soon ceased to apply it except for particular cases. It greatly interested me to hear that Sir Victor Horsley in his brain surgery adopts no other method for the arrest of hæmorrhage than that of sponge pressure and that he also applies it with increasing frequency in his ordinary surgical operations.

White contributed three surgical papers to the "Medical Observations and Inquiries" published by a society of physicians in London. One of these was on a new method of reducing dislocations of the shoulder of long standing, published in Vol. II. (London, 1764) and another, in the same volume, was on a case of tetanus in which the patient's recovery appeared to be the result of immersion in a hot bath. The third paper appeared some years later in Vol. IV. (London, 1772) and described a new method of amputating the leg above the ankle-joint. But shortly before this paper was published there appeared another of much greater importance. It is an account of a case in which the head of the os humeri was removed for caries and the operation is described as being the first of the kind that had been performed, or at least the first that had been made public, though the author admits that there had been instances of the heads of bones being sawn off in compound dislocations. As the question of priority here comes in it may be well to state that Mr. White's operation was performed in 1768 and that the paper was read before the Royal Society on Feb. 9th, 1769. Already, as a matter of fact, there had been placed on record several cases in which the heads of bones had been removed for disease as well as for injury,[7] but we may take it as certain that, so far as White was aware, the proceeding was a new one. His practice was imitated in 1771 by Mr. Bent of Newcastle and in 1778 by Mr. Orred of Chester. With the exception, however, of a case of Mr. Wainman of Skipton-in-Craven, which occurred in 1768 and in which the ends of the bones were excised in a compound dislocation of the elbow,[8] and a case of Mr. Filkin of Northwich in Cheshire, in which the patella and the articular extremities of the femur and tibia were removed in a case of diseased knee,[9] all the cases published up to this time, both in this and other countries, were, so far as I can find, examples of the removal of one articular surface only. The merit of suggesting the more complete operation of excision, in which not only the articular ends of the bones but the whole, or as much as possible, of the capsular ligaments are removed, appears to belong unquestionably to Mr. Henry Park of Liverpool[10] who first published his method in the form of a letter to Mr. Percivall Pott in 1783. It seems desirable to state these facts, inasmuch as it has been claimed for White that he originated the operation of excision of joints for disease. This claim can scarcely be sustained. At the same time he was certainly one of the pioneers in this department of surgery and deserves the credit of having proposed and carried out a conservative method of operating that, so far as he knew, was original. The result in his case was successful, for although four inches of the end of the humerus exfoliated the patient could afterwards carry heavy weights and regained all the movements of the arm.

In 1770 he published a volume entitled "Cases in Surgery." This he dedicated to his father and he included in it, along with much new matter, all his previous surgical writings with the exception of the paper on the surgical use of sponge which he had already published in separate form. The appearance of this book is said to have had the effect of widely extending his reputation. It is described on the title-page as Part the First, but there is no record of his having made any further contribution to strictly surgical literature. Of his next book I have already spoken. It was his *magnum opus*, the work upon which his fame most firmly rests and which has secured for Manchester a peculiarly honourable place in the history of obstetrics. Other distinguished Manchester obstetricians succeeded him and worthily maintained the traditions that he had established but none can be said to have been quite his equal or to have in any way dimmed the lustre of his great reputation. Following upon this larger and more comprehensive work came another important contribution to obstetric literature in which he gave the first accurate description published in the English language of the condition known as "white leg."[11] His theory as to the nature and cause of this affection may be briefly summarised as follows. The pregnant uterus, by the violence of its contractions during labour, presses the lymphatic vessels so forcibly against the sharp and often jagged edge of the pubic portion of the pelvic brim as to wound the vessels and cause them to discharge their contents. The lymph thus extravasated usually becomes absorbed sooner or later by the lymphatics in the neighbourhood. In a space of time varying from 24 hours to six weeks the orifices in the ruptured lymphatics close but they do so in such a manner as to constrict, and in some cases to obliterate, the lumen of the vessels, which consequently become gorged with lymph to such an extent as to cause a general swelling of the limb with all the usual signs and symptoms that characterise "white leg." The whiteness is due to incidental compression of the blood-vessels; all the other physical signs, together with the pain, result from the suddenness and extent of the initial distension. The lymph that exudes when the limb is punctured flows not from the meshes of the cellular tissue, like the fluid in anasarca, or from the main trunks of the lymphatic vessels, but from the *minima vasa* of the cutaneous lymphatics. The speedy subsidence of the first violent pain and of the extreme distension is due to the anastomosis of the injured vessels with the vessels more deeply seated, whereby the obstructed lymph is by degrees carried off, though it is many weeks before the relief is complete. This I believe to be a fair though, of course, condensed statement of White's views as to the pathology of the condition he is describing. It is scarcely matter for surprise that such a theory, however ingenious, was not allowed to pass long unchallenged and a supplementary volume was issued the object of which was to reply to the various criticisms that had been offered[12]

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[6] The operation consisted of removal of the ends of the bone and though suggested by Charles White was not actually performed by him but by his colleague Mr. Burchall, who so bitterly resented White's taking the credit of the case that an inquiry was instituted and witnesses were called. A narrative of the proceedings was published by White who therein declared that the only merit he assumed was that of the "invention," not the actual operation, and that he had never stated anything to the contrary.

[7] For particulars and references see note under "Joints, Excision of," in Cooper's Dictionary of Practical Surgery, new edition, by S. A. Lane, vol. ii., London, 1872.

[8] See postscript to Charles White's article on the Regeneration of Animal Substances in the Memoirs of the Manchester Literary and Philosophical Society, vol. i. Warrington, 1785, p. 340.

[9] Jaffray's Cases of Excision of Carious Joints, Glasgow, 1806, pp. 52 to 55 (see following footnote).

[10] H. Park: An account of the new method of treating diseases of the joints of the knee and elbow, in a letter to Mr. Percivall Pott, Liverpool, 1783. A translation was published in France in 1784 by Professor Lassus. The pamphlet was reprinted with additions by Dr. Jaffray in Glasgow in 1806 under the following title: "Cases of Excision of Carious Joints," by H. Park of Liverpool and P. F. Moreau, de Bar-sur-Ornain, with observations by James Jaffray. Mr. Park's additions to his original letter comprise "a second case as communicated by him in a letter to Dr. Simmons, Nov. 5th, 1789, and published in the eleventh volume of the London Medical Journal" and "subsequent observations" bearing date, Liverpool, Sept. 10th, 1805.

[11] "An Inquiry into the Nature and Cause of that Swelling in One or Both of the Lower Extremities, which Sometimes Happens to Lying-in Women, &c." The first edition was published at Warrington in 1784, the second in London in 1792, and a supplementary volume, Part II., at Manchester in 1801.

[12] The most important of these were contained in (1) an essay published in 1792 by Mr. Trye of Gloucester, surgeon to the infirmary of that place and formerly assistant to Mr. Sheldon, professor of anatomy to the Royal Academy of Arts; (2) an essay in the third volume of Dr. Ferriar's "Medical Histories and Reflections," published in 1798, on an Affection of the Lymphatic Vessels hitherto Misunderstood; and (3) an "Essay on Phlegmatia Dolens," by John Hull, M.D., published in Manchester in the year 1800. It was in this last-named essay that the name "phlegmatia dolens" appears for the first time. Dr. Hull was a botanist with the botanist's instinct to label and to classify everything. He accordingly gave the disease a name in order to be able to fit it into its proper place in the nosology, which he does

and at the same time to bring forward a fresh body of evidence in support of the author's opinions. In judging of his theory it must be remembered (1) that as all his 14 cases recovered he had no opportunity of examining the condition of the parts by dissection, and (2) that we are even yet without a convincing and adequate pathological explanation of this remarkable affection. But whatever he thought of its pathology there can be no difference of opinion with regard to the value of White's essay as an original and accurate clinical study, and it is in this light that it will always possess an interest for the historian of obstetric medicine.

His next essay, which appeared in 1790, was entitled "Observations on Gangrenes and Mortifications accompanied with, or occasioned by, Convulsive Spasms."[13] The object of the essay is to call attention to the excellent effects which the author had found to follow the administration in these cases of large and frequently repeated doses of musk and salt of hartshorn. The musk was held to be the important ingredient. It is described as possessing antispasmodic, diaphoretic, sedative, and cordial properties. It had, so far as the author knew, never been given before for this particular condition, nor had it, in his opinion, ever been prescribed in sufficiently large doses. He was evidently greatly pleased with himself for having found out a new remedy and prided himself quite as much on the result of this, his solitary excursion into the domain of therapeutics, as he ever did upon being the discoverer of a new operation or the delineator of a hitherto unrecognised disease. This brings to an end the series of White's strictly professional writings.[14]

In his later years he interested himself with questions of natural history and read a series of papers before the Manchester Literary and Philosophical Society, embracing such different subjects as the regeneration of animal substances, the natural history of the cow considered as a milk producer for the benefit of man, the thigh-bone of a mammoth, and some new kinds of timber-trees, three in number, which he believed likely to prove a valuable acquisition to this country "both in point of profit and as trees for ornament and shade." These trees were the black American birch, the Athenian poplar, and the iron, wainscot, or Turkey oak. More important, however, than any of these essays was one on "Gradation" in man and in the animal and vegetable kingdoms, which was first read in a series of papers before the Manchester Literary and Philosophical Society during the year 1795 and was published in 1799 in the form of a quarto volume with illustrations. The essay was suggested by a demonstration of John Hunter, at which White was present and in which a number of skulls was placed upon the table in regular series, first the human skull with its varieties, then the skull of a monkey, and so on to that of a dog. It occurred to White, as he reflected on the question, that nature would not be likely to employ gradation in the matter of skulls alone, but if she adopted it at all would almost certainly adopt it as a general principle. The facts and observations he had been able to collect had led him to the conclusion that there is a general gradation in nature, not only between the different races of men but from man to other animals, from one kind of animal to another, from animals again to vegetables, and through the whole vegetable system. The author laments his want of a thorough knowledge of natural history, which, indeed, is obvious throughout the essay and gives it what may be described as an air of amateurishness. But even when that is said it remains a remarkable and interesting production, considering the time at which it was written and the circumstances in which it was composed. This treatise provoked a reply from Samuel Stanhope Smith, D.D., president of New Jersey College.[15]

In the year 1803 White was attacked with an eye affection said to have been at that time epidemic. At first only the left eye was involved. The pain he suffered in it was extreme and long-continued and although the inflammation was eventually subdued the sight of the eye was never completely restored. He still continued to practise, however, and even to perform operations. There is in the library of the Obstetrical Society of London an autograph letter addressed by him to Dr. Rigby of Norwich which is interesting not only in itself but as showing the firmness of his handwriting and the character displayed in it, notwithstanding his age and the impairment of his vision. The letter is dated "Sale, Sept. 6th, 1811," and reads as follows:—

> My dear Sir,—Give me leave to return you my best thanks for the fifth edition of your excellent essay on the uterine hæmorrhage and particularly for the honour you have conferred upon me by dedicating it to me. I read your first edition as well as the MS. with great satisfaction and I now find you have enriched it much by several valuable additional cases.
>
> I have just now finished my improvements at my little villa at Sale in Cheshire and am now retiring at 85 from the busy scenes of life with as much activity and good health as generally falls to persons of that age and in future I propose to confine myself to consultations.
>
> I am, yours most faithfully,
>
> C. WHITE.

The little villa spoken of in this letter is the house now known as Sale Priory which had belonged to Charles White's father and had been *his* haven of refuge in his declining years as it was now to be his son's. At the end of what was once a picturesque grove of forest trees forming part of the priory grounds are the dilapidated remains of a monument of red sandstone originally about 14 feet in height, erected to the memory of his father by the more eminent son. Dr. Angus Smith in his "Centenary of Science in Manchester" gives a graphic and touching description of a visit he paid to this monument in April, 1881, in company with Dr. Joule, the famous discoverer of the mechanical equivalent of heat. The following is a copy of the inscription:—

> To the memory of Dr. Thomas White who, after acquiring prominence in his profession, retired from its honours and emoluments to enjoy in rural tranquility the pursuits of knowledge. Serene and cheerful through the declining period of life he attained the eighty-first year of his age with faculties unimpaired and died July 20th, 1776. The grove which he planted and reared is now in its maturity. Consecrated to his revered name by his only son Charles White who erected this monument A.D. 1790.

White was not destined to enjoy his rural retirement very long, for he soon became totally blind and died on Feb. 20th, 1813, at the ripe age of 84 years.

Charles White married on Nov. 22nd, 1757, Ann, daughter of John Bradshaw, at one time (1753) High Sheriff for the county of Lancaster. They had eight children, four sons and four daughters. Thomas, his second son, became physician to the Manchester Infirmary and, as has been already stated, undertook, in association with his father, the charge of the anatomical department in the College of the Arts and Sciences instituted in Manchester in 1783, delivering courses of anatomical lectures there in the years 1787 and 1788. He made considerable additions to his father's museum of anatomical preparations. He took part in the founding of the Manchester Lying-in Charity and Hospital and delivered lectures on midwifery in connexion with it from its opening in 1790 up to the time of his death, which occurred from the effects of a fall from his horse in 1793. His father in 1790 dedicated to him his "Observations on Gangrenes and Mortifications." Of the other three sons of Charles White one, Charles, died in infancy. The third son, also named Charles, was accidentally drowned, in June, 1774, whilst bathing with his elder brother Thomas and other schoolfellows in the Irwell.[16] The fourth, John Bradshaw White, was educated for the medical profession, lived with his father in King-street, and became one of the medical officers of the Lying-in Hospital. His career, however, was soon cut short, for he died in 1797, at the age of 27 years, and was buried in the old church at Ashton-upon-Mersey. A tablet in the north wall of the church erected in memory of Charles White and several members of his family indicates

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treating it exactly as though it were a new botanical specimen. White, in his reply, further elaborated the name into "phlegmatia alba dolens puerperarum."

[13] On referring to the cases described it is evident that by the phrase "convulsive spasms" the author means hiccough and subsultus tendinum.

[14] Finding in the catalogue of printed books at the British Museum, under the name of "Charles White," the following entry, "Lying in. Mr. W. . . .'s address to the community respecting conceal'd pregnancy," I naturally flattered myself that I had unearthed a writing unmentioned by, and probably unknown to, White's former biographers. On referring, however, to the publication itself the thing proved to be a pamphlet written for the purpose of advertising a house in London kept by a Mr. and Mrs. White, where ladies who had occasion to be ashamed of their condition could be received for their confinement. A tariff of charges is furnished and absolute secrecy promised. It was evident that the error had arisen from the fact that Charles White's principal work is on the management of "lying-in" women. For the sake of his reputation, as well as for the sake of accuracy, I communicated my discovery to the keeper of the printed books who at once had the error rectified.

[15] An essay on the causes of the variety of complexion and figure in the human species, to which are added animadversions on certain remarks made on the first edition of this essay by Mr. Charles White. Second edition. New Brunswick, 1810. A copy of this book is in the British Museum.

[16] Harland's Collectanea, vol. ii., p. 182. Chetham Society's publications, Manch., 1867.

the place of interment both of Charles White himself and of his youngest son.

It may be that now and then White yielded to a temptation to which men of predominant intellect and force of character are specially prone, the temptation to let others see and feel the superiority of which they themselves are conscious. Stories have come down to us which show that he did occasionally in his behaviour towards his professional brethren carry matters with rather a high hand, but certainly nothing could exceed the admiration expressed for his character and work both in Manchester and elsewhere by those who being leaders of the profession to which he belonged were best qualified to judge. It is on record that he possessed a clear and pleasant voice and that he was an impressive and inspiring teacher. His painstaking manner in the investigation of a case and his promptitude and firmness in coming to a decision gave his patients unlimited confidence in him. He was a genial companion ever ready to gather as well as to impart information, and his conversation is said to have abounded with entertaining anecdotes. He was a man of whom Manchester will always feel proud and in taking leave of him to-day we can adopt with very slight modification the graceful words addressed to him towards the close of his life by his old friend Dr. Rigby of Norwich,[17] and, after the lapse of nearly 100 years, can still truthfully say "that time has in no degree lessened the sense of our obligation to him, nor can it diminish the great respect that has ever been entertained for his high character as a surgeon, as an author, and as a man."

THE QUANTITATIVE AND QUALITATIVE RELATIONS OF TOXIN AND ANTITOXIN.

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PART I.—SOME CONCLUSIONS DRAWN FROM THE ABOLITION OF THE FATAL ACTION OF A LETHAL DOSE OF TOXIN BY ANTITOXIN, AND THE ABSENCE OF THIS ABOLITION IF THE HUNDREDFOLD MULTIPLES BE TAKEN.

THE following paper has only an indirect bearing upon the routine methods of testing and standardising diphtheritic and other antitoxic sera. These methods fulfil the requirements of testing and are not, from the practical aspect, subject to the following criticism of the hypotheses which have been advanced in explanation of phenomena met with in the course of following them out.

It is usually stated that the quantity of antitoxic serum necessary to render no longer lethal a fatal dose of diphtheria toxin bouillon neutralises the latter. It is one of the purposes of this note to emphasise the limitations within which this method of stating the neutralisation process is true and to point out the important bearing of these limitations on some hypothetical explanations of the apparent non-fulfilment of what is known as the law of multiples when solutions of toxin and antitoxin react with one another in different volumes. The term "neutralisation" is indiscriminately applied both to the reaction between toxin and antitoxin, and to its consequence—viz., diminution or complete loss of the full toxicity of a quantity of toxin. Although intimately related, the two are distinct phenomena. It is unfortunate that the distinction between them is not more generally made. A chemically neutral mixture of toxin and antitoxin will be a physiologically neutral one. What is usually called physiologically neutral mixture is not necessarily a chemically neutral one; the former takes no account of molecular quantities. Much confusion is obviated by keeping these distinctions in mind. It must also be remembered that cells or animals, as indicators of the physiological neutrality of a mixture of toxin and antitoxin, do not permit of the sharp definition attainable in determining chemical neutrality, and also, as with some chemical indicators—e.g., turmeric which only gives evidence of free alkali—the physiological indicators only respond to one of the factors in the reacting mixture—viz., the toxin—if the latter be present in sufficient excess to produce illness. In dealing with toxins and antitoxins we have no direct indications of chemical neutrality.

One of the fundamental assumptions of some very prevalent views on the nature of immunity is that 100 times the quantity of antitoxic serum needful to render non-lethal the fatal dose of toxin should render 100 times the fatal dose innocuous.[1] The requirement is practically never fulfilled and it is customary to point out that its fulfilment can alone be possible if the toxin bouillon contains only a single factor capable of reaction with the antitoxin. Conversely the non-fulfilment of the requirement is held to be an argument in favour of the assumption that more than one factor is able to react with the antitoxin. Because the hundredfold multiple of antitoxic serum is not found to render non-lethal so much as 100 times the fatal dose of toxin bouillon it is stated that there must be contained in the latter other factors than the toxin able to neutralise antitoxin, and this assumption requires the further hypothesis that any factors present cannot be possessed of the characteristic toxic action of the toxin, but they must nevertheless still be possessed of the latter's power to neutralise the specific antitoxin. It is only fair to point out that further reasons are also adduced in support of the view that non-toxic products present in diphtheria toxin bouillon may still be antitoxin-neutralising bodies, and I may add that because guinea-pigs frequently die subacutely with paralytic symptoms after receiving a mixture of diphtheria toxin and antitoxin it has been assumed that this is further evidence of the existence of a relatively non-toxic modification of the toxin. Into the question of the relation of the toxic power of a toxin to its antitoxin-neutralising power I do not now wish to enter.

In the first place I wish to discuss why it is not justifiable to require that the hundredfold multiple of the quantity of antitoxin that is able to render non-lethal a lethal dose of toxin should render 100 such lethal doses innocuous.

1. In experiments performed some time ago in Berlin I found, after preliminary determinations, the dose of a diphtheria toxin bouillon which killed five guinea-pigs each of 250 grammes weight between the fourth and the fifth day to be 0·0075 cubic centimetre (contained in 2·25 cubic centimetres of 1 in 300 dilution). The dose which did not kill any of another similar series till between the fifth and sixth day was 0·006 cubic centimetre (contained in 1·8 cubic centimetres of 1 in 300 dilution). In each case the quantity was made up to four cubic centimetres with 0·86 per cent. of saline solution. The syringe was washed out with saline solution and the washings were also injected. The injections were made over the sternal region. Previous attempts to secure two such series as above had given wider margins of difference between the doses of the two series and also between the intervals at which the fatal issue occurred. When the difference between the doses of the two series specified amounted to one-fifth of the determined lethal dose (0·0075 cubic centimetre) it was possible to obtain two series distinguished from one another by one day's interval in the manifestation of the lethal issue. The attainment of this result was probably exceptional because I have not again been able to obtain two doses one of which always killed on the fourth and the other on the fifth day. The smaller dose was as apt to kill on the fourth as the larger was to kill on the fifth day. The two successful series, however, were sufficient to show that the diminution by one-fifth of its quantity sufficed to prevent the fatal dose from fulfilling the requirement that it should kill within four days. In a further series of experiments it was determined that a quantity somewhere between one-twelfth and one-twentieth of the above lethal dose did not manifest itself in any symptoms—i.e., the animals did not lose weight. I did not attempt to define the largest portion of the lethal dose which could be borne without manifest illness. It was sufficient to have obtained a measurable quantity thus characterised.

2. When a series of mixtures of toxin bouillon and antitoxic serum was made, so that in the same bulk of fluid the determined lethal dose was always contained, together with varying amounts of antitoxic serum, that dose of serum which rendered the lethal dose non-lethal within the time limit of four days was determined. Very little serum sufficed

[17] See the dedication to the fifth edition of his famous monograph on uterine hæmorrhage.

[1] The fatal dose more particularly referred to is the dose of diphtheria toxin bouillon which kills a 250-gramme guinea-pig within four days, but on this special case very far-reaching general statements are based.

to postpone death (which was still acute) to the fifth or the sixth day. The quantities effecting this postponement were only fractions of the total amount of antitoxin necessary to prevent a lethal issue within four days and still smaller fractions of the amount necessary to prevent absolutely a fatal termination. I do not wish to suppose that these fractions of serum were equivalent to the previously determined diminution by one-fifth in the lethal dose of the bouillon; the postponement of the lethal issue may possibly have been effected by the abolition of far smaller fractions of the full toxic power of the lethal dose. With a greater proportion of antitoxic serum added and the apparent absence of all symptoms there was probably not less than from one-twelfth to one-twentieth of the toxin dose "free,"[2] as determined in the section above. The amount "free" may here have been considerably above this fraction. There was no means by which it could be determined that these last fractions of the full toxic power had been rendered completely innocuous, although by the arbitrary addition of excess of antitoxin this would easily have been effected. It is needless to enter into further details of "neutralisation" series, such as are familiar to all pathologists and easily accessible in many papers. In the reaction between a toxic bouillon and an antitoxic serum there is, therefore, a phase of which the boundaries cannot be accurately defined. If one does not assume that a molecule of the one reacts with a molecule of the other, there is, on the one hand, the possibility of the presence in the mixture of a measurable fraction of unneutralised toxicity, and on the other hand, of unneutralised—i.e., excessive—antitoxicity. Just as in section 1 the line of demarcation is indefinite. A series of doubtful doses intervenes between the certainly lethal and the certainly non-lethal. It is pure hypothesis to suppose that toxin and antitoxin can only react in one fixed proportion. It is further to be noted that it has become the fashion to estimate all these reactions on the basis of a lethal dose which kills within four days. Whereas the four-day limitation allows of greater rapidity in arriving at comparative results, it does not give greater but less accuracy in determining certainly lethal from the certainly non-lethal doses. The zone between all the certainly lethal and all the certainly non-lethal doses may be a narrower one and have more definite limitations if the absolute minimal lethal dose be determined. When one is dealing with the absolute minimal lethal dose and the abolition of the lethal action by means of antitoxin, one has at any rate a definite issue to look for in obtaining comparative results. If the period of observation be limited, however, to a period of four days within which the issue must be lethal or non-lethal this definiteness is lost.[3] No attention is paid to the symptoms of illness, which must vary from *nil* to any degree of seriousness in accordance with the size of the fraction of unneutralised toxicity. All degrees of neutralisation extending over the wide zone lying between excessive addition of antitoxin and very limited neutralisation of toxicity are thus classed in the same category as "neutralised" and no attempt is made to secure, nor would it be possible to obtain, the same margin of error in all the observations compared. In making the determinations all that is sought for is such an addition of antitoxin that death does not occur at all, or at any rate not within four days, and obviously these results will be obtained by very different quantities of antitoxin. This procedure, while eminently serviceable for the practical purposes of standardising antitoxin, is not sufficiently accurate for theoretical purposes. The wideness of the limitations of what is regarded as "neutralisation" is, I consider, therefore quite sufficient to account for the 100 antitoxin equivalents corresponding "to 16 and in another extreme instance to 136 lethal guinea-pig doses," according as there had been physiologically really "under- or over-neutralisation" respectively of the lethal dose multiplied.[4] In experiments of this nature the facts ascertained have reference only to physiological neutralisation and it is not correct to interpret these as having a direct and equal bearing upon chemical neutralisation.

3 From what has been said above it is obvious that to render non-lethal within four days a dose of toxin bouillon, proved to be lethal within that period, it is necessary to abolish the potency of only a fraction of the total toxicity, to reduce the latter, indeed, to the equivalent of that of a dose fatal in five days as noted in section 1. Similarly, to render non-lethal the absolute minimal lethal dose, it is only needful to abolish such a fraction of the full toxicity as shall reduce this latter to the non-lethal dose still sufficiently large to cause illness—i.e., complete abolition of the whole effect is not required. Fraser has emphasised this for snake venom: "While 0·35 cubic centimetre of antivenene per kilogramme is required to prevent death from twice the minimum lethal dose of venom, the minute quantity of the $\frac{1}{3500}$th of a cubic centimetre, or nearly 1000 times less (0·0004 as compared with 0·35), is sufficient to prevent death from a little more than the minimal lethal dose of venom; ..... if this dose be the actual minimum lethal, the rendering inert of any portion of it, however minute, will prevent the remainder from causing death." Kanthack and Cobbett have also drawn attention to the same phenomenon. Cobbett obviated the error involved in taking the simple lethal dose as unity, by taking two lethal doses for the starting point, and then determining the ratios for 2, 11, 101, and 1001 lethal doses. I take the liberty of directing special attention to Cobbett's experiments in this connexion, for they seem to have been overlooked. In the pharmacological antagonism of drugs—viz., in the abolition of the lethal action—a similar phenomenon is met with. In the abolition of the lethal action of one and a half minimal lethal doses of morphine this is effected in the accompanying table both by 0·07 milligramme

Abolition of Fatal Action of One and a Half Minimal Lethal Doses of Morphine Tartrate.

Number of experiment.	Weight of rat in grammes.	Dose of atropine sulphate in milligrammes.		Dose of morphine tartrate in milligrammes.		Result.
		Actual dose.	Dose per 100-gramme rat.	Actual dose.	Dose per 100-gramme rat.	
55	204	0·0412	0·02	173·0	85·0	+ after 4 hours.
56	140	0·06	0·05	119·0	,,	+ before 17 hours.
57	187	0·1125	0·06	159·0	,,	+ after 6 hours.
58	142	0·1	0·07	128·7	,,	0 on 6th day.
59	184	0·1372	0·075	156·2	,,	+ after 6 hours.
60	210	1·525	0·25	178·0	,,	0 after 5 days.
61	210	1·0	0·5	178·0	,,	0 after 4–5 days.
62	195	1·0	0·6	165·0	,,	0 after 3–4 days.
63	325	2·4	0·75	278·0	,,	+ (*) after 6 days.
64	134	1·2	0·9	115 0	,,	0 after 5–6 days.
65	147	6·0	4·081	125·0	,,	0 after 3 days.
66	156	7·0	4·5	133·0	,,	0 after 3–4 days.
67	138	6·25	4·6	117·0	,,	+ before 17 hours.
68	124	6·0	4·84	105·0	,,	+ before 20 hours.
69	155	7·75	5·0	132·0	,,	+ before 22 hours.
70	124	7·0	5·66	105·0	,,	+ before 17 hours.

+ means dead; 0 means alive. These experiments are quoted from an extensive investigation of this subject. Vide Archives Internationales de Pharmacodynamie, vol. viii., 1901.

(*) This rat was exceptionally fat and heavy; in consequence of the excessive amount of fat the dose must be regarded as considerably higher than 85·0 milligrammes per 100 grammes.

[2] To designate this fraction of toxin "free" will only be justifiable, if after completion of the reaction between toxin and antitoxin as such the product of the reaction be indifferent to any remaining toxin. It will subsequently be shown that there is some reason for believing that the product of the reaction is not indifferent in this way, but, on the contrary, liable to enter into a combination with a higher proportion of toxin, thus still further reducing the amount of the "free" or uncombined toxin contained in dilute solution in the mixture. To call antitoxin in such a mixture "free" also postulates the manner in which antitoxin unites with the toxin and implies that a molecule of the one reacts with a corresponding molecule of the other, quantitative excess of either being possible.

[3] I do not wish to call in question the utility of this time limitation in determining the occurrence or abolition of a lethal issue. For the practical purposes of testing and standardising antitoxic sera such a time limitation is essential. The method has been productive of advances in knowledge which would have been unattainable without it. Where the fatal termination occurs after three or four weeks comparative results are difficult or scarcely possible of attainment, especially with bodies so liable to change in poteney as toxins and antitoxins. The time limitation allows of the more rapid accumulation of experimental results and, therefore, of the more quick attainment of the goal in an investigation. In generalising from such experiments, however, in the conclusions the introduction of the time limit at the outset is almost always forgotten, as is also the fact that the time limitation is a mere experimental convenience as above explained.

[4] Transactions of the Jenner Institute of Preventive Medicine 1899, p. 6.

and 4·5 milligrammes of atropine. The latter of these doses must certainly have exercised an influence in excess of that attained by the former dose, and yet it did not abolish all the effects of the dose of morphine, nor for the matter of that was any dose of atropine able to effect complete abolition of the action of the morphine.

The nature of pharmacological antagonism precluded abolition of the lethal effect by a still larger dose. Pharmacological antagonism is certainly not due to direct interaction of the two active agents in question and I only quote the matter here in support of the general contention that between abolition of lethal action and complete abolition of all action (or in the case of toxin and antitoxin of complete physiological and chemical neutralisation) there is a wide margin. Obviously, therefore, to state that a certain quantity of antitoxic serum neutralises the lethal dose is a careless way of saying that it abolishes the lethal action. To require that the hundredfold multiple of the quantity of an antitoxic serum which renders non-lethal a dose of toxin shall *neutralise* physiologically 100 similar doses is erroneous and it is wrong to apply the data to the problems of chemical neutralisation. If it be found that instead of the action of the 100 doses only that of 60, say, is accounted for, this fact of itself does not justify the adoption of an explanation which calls into existence in the toxin bouillon some non-toxic but antitoxin-neutralising substance—i.e., a body physiologically inert but chemically active. It is only legitimate to require that the hundredfold multiple of the quantity of serum shall account for the action of 100 times the toxic fraction abolished in the case of the simple dose of the toxin bouillon—i.e., provided the larger masses acting and their products are indifferent to the reaction, which in all probability they are not. In making comparisons for theoretical purposes it is not justifiable to assume that a constant quantity of a specific antitoxic serum must neutralise the same multiples of the lethal doses of different toxin bouillons of which the lethal doses are contained in different volumes; for practical purposes this variation in the volumes containing a lethal dose matters little.

4. Some of the points raised in the foregoing in regard to deductions based on what occurs for a simple dose and its multiples may be illustrated by a case in which there can be no question of a non-toxic yet antitoxin-neutralising modification of a toxin, nor of an antitoxin. If corrosive sublimate dissolved in 0·86 per cent saline solution is allowed to act on one cubic centimetre of defibrinated rabbit's blood in a 5 per cent. suspension the erythrocytes will be laked after an interval of from four to six hours at 38° C., as follows:—

Corrosive sublimate, 1 in 10,000,	1·0	c.c.	.....	Complete laking.	
,, ,, ,, ,,	0·75	,,	.....	,,	,,
,, ,, ,, ,,	0·50	,,	.....	,,	,,
,, ,, ,, ,,	0·55	,,	.....	,,	,,
,, ,, ,, ,,	0·25	,,	.....	,,	,,
,, ,, ,, ,,	0·15	,,	.....	Not complete.	
,, ,, ,, ,,	0·10	,,	.....	Slight.	
,, ,, ,, ,,	0·05	,,	.....	*Nil.*	

To all the test-tubes saline solution is added to raise the bulk to 2 c.c.

The limits of the action vary in different specimens of defibrinated blood, probably on account, not so much of varying susceptibility as of variation in the number of erythrocytes in one cubic centimetre of the suspension due to the different extents to which they are removed during the process of defibrination. It is better to obtain more accurate determinations by using higher dilutions of corrosive sublimate and then to choose a dilution which allows of all the stages being included within a convenient compass.

In the above series 0·25 cubic centimetre is the lowest dose which has effected complete laking. In another series of tubes, under the same conditions of experiment, that quantity of rabbit's serum (or any other serum apparently indifferent to rabbits' erythrocytes) is determined which added simultaneously with 0·25 cubic centimetre of the corrosive sublimate solution abolishes[5] the effect of the latter.

Corrosive sublimate 1 in 10,000.	Serum.	Result.
0·25 c.c.	0·55 c.c.	0
,, ...	0·30 ,, ...	0
,, ...	0·15 ,, ...	0
,, ...	0·20 ,, ...	0
,, ...	0·15 ,, ...	Almost complete laking.
,, ...	0·10 ,, ...	Complete laking.

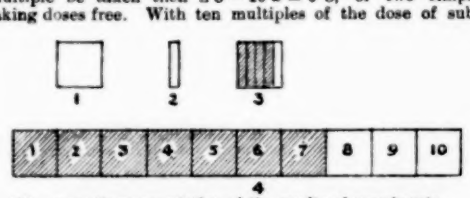
[5] This is not an antitoxic action on the part of the serum, but analogous to certain other reactions which in another paper I have designated as "pseudo-antitoxic," because they simulate the toxin-neutralising action of an antitoxin.

Here it is only after much experimentation that the results can be obtained in this convenient compactness.

From these two series of experiments we have obtained the information that 0·25 cubic centimetre of the corrosive sublimate solution effects complete laking, that 0·05 cubic centimetre has no effect, that 0·2 cubic centimetre of serum abolishes the effect of 0·25 cubic centimetre of the sublimate solution, and that therefore in the mixture containing 0·25 cubic centimetre of sublimate and 0·2 cubic centimetre of serum there could not have been free to act more than 0·05 cubic centimetre of sublimate solution. If an experiment be now performed with the tenfold quantity of serum we shall see if this quantity be able to abolish the effect of ten times as much corrosive sublimate. The quantity of serum is two cubic centimetres and we add corrosive sublimate in the following quantities:—

Corrosive sublimate (c.c.).	Result.	Corrosive sublimate (c.c.).	Result.
2·50	Complete laking.	1·90	Incomplete.
2·35	,, ,,	1·85	Slight.
2·25	,, ,,	1·80	? trace.
2·20	,, ,,	1·75	0
2·15	,, ,,	1·70	0
2·10	,, ,,	1·65	0
2·05	,, ,,	1·60	0
2·0	,, ,,	1·55	0
1·95	? not complete.		

There is difficulty in determining the exact limit where complete laking and no laking are present. We may take these limits, however, as being with two cubic centimetres and 1·75 cubic centimetres respectively. The difference between these two quantities is 0·25 cubic centimetre—i.e., the simple laking dose. The tenfold multiple of serum has "neutralised" not the tenfold quantity of sublimate but only somewhere between seven and eight times of what might have been expected, if one were to require here what is required in similar circumstances in the case of multiples of toxin and antitoxic sera. Here two or three complete doses of sublimate less than the tenfold quantity have not been neutralised and it is certainly impossible to assume that there is present in the corrosive sublimate solution a body derived from it without the laking action of corrosive sublimate, but with the power of the latter to enter into reaction with the albumins contained in the serum added as the "protective" agent in this case. The explanation, as shown by the following considerations, is the simple one that in the tenfold multiples the fraction not reacted on by the serum in the case of the simple dose has become augmented into a potent quantity equal at least to two simple laking doses. Of the solution of sublimate 0·25 cubic centimetre effects complete laking while 0·05 cubic centimetre is without evident effect. The addition of 0·2 cubic centimetre of serum abolishes the effect of 0·25 cubic centimetre of sublimate solution—i.e., of the 0·25 cubic centimetre not more than 0·05 cubic centimetre is free and not less than 0·2 cubic centimetre has been neutralised. If 0·2 cubic centimetre $= x$ then $0{\cdot}25 - x = 0{\cdot}05 = 20$ per cent.; if the tenfold multiple be taken then $2{\cdot}5 - 10x = 0{\cdot}5$, or two simple laking doses free. With ten multiples of the dose of sublimate the quantity unneutralised has become a multiple of this simple dose—i.e., a dose which was harmless has been multiplied so as to become harmful. It is therefore needless to assume that something else than the corrosive sublimate *per se* has used up the serum added.



Diagrammatic representation of the results of experiments with corrosive sublimate. 1, Minimal dose taken as unity. 2, Largest dose producing no evident action. 3, Shaded area=abolition of action of minimal dose; white area=fraction of dose still potent. 4, Result of taking tenfold multiples: shaded area action abolished; unshaded area=augmented extent of portion not abolished by serum.

The erythrocytes are not delicate indicators enough to permit of a "neutralisation" of this nature without the introduction of an experimental error of more than one complete dose in a tenfold multiple. In the "neutralisation" the difference between the tenfold "neutralisation" required and that obtained was nearer three doses than two—the action only of seven and not of eight simple doses was completely abolished. This shows that with the hundredfold multiples there would have been a difference of from 20 to 30 doses between the neutralisation point found and that required by assuming complete "neutralisation" of the single dose to have been effected by the quantity of serum which sufficed to abolish its action. I doubt if anyone would venture to suggest that the explanation was to be found in the presence in the sublimate solution of bodies analogous to those nowadays generally believed to be responsible for the similar difference in the case of toxin and antitoxin.

5. Guinea-pigs are not such good indicators of the presence of free diphtheria toxin as rabbits' erythrocytes are of corrosive sublimate. Earlier in this note I have mentioned that one twelfth to one-twentieth of the lethal dose of diphtheria toxin bouillon was certainly borne without any symptoms, but a much larger dose—one-sixth, one-fifth, or even one-fourth—may frequently be followed by little or no sign of illness. In a "neutralisation" experiment, where the presence or the absence of a fatal issue is the criterion of "neutralisation," any lesser reaction would almost certainly be overlooked or regarded merely as transitory œdema, loss of weight, &c., even if prominent enough to attract so much notice. When, on taking the hundredfold quantity of antitoxic serum, it is found that ten, 20, or 30 doses less than the hundred doses of toxin expected are "neutralised," it is not correct to interpret this falling short solely on the hypothesis that in the diphtheria toxin bouillon there is present a derivative of the toxin which is not toxic but yet possessed of antitoxin-neutralising powers. Some proportion of this shortcoming is represented by the difference between the hundredth multiple of the fractions "neutralised" and the 100 complete doses. Another portion will be due to the magnification of the experimental error in the determination of the lethal dose in the same way as an error of more than one whole dose arose in the corrosive sublimate experiments. If these two factors of themselves are not sufficient to account for the whole difference, then, apart from other considerations, it is probable that where bodies of high molecular weight are reacting the process only advances to a certain limit when the products of the reaction cause it to cease. This is, however, a hypothetical consideration.

6. Various observers have drawn attention to the following. When 100 times the quantity of antitoxin required to neutralise the lethal dose reacts with a multiple of the latter the animals experimented on, though they may escape immediate death, frequently suffer from, or even ultimately die with, chronic paralytic symptoms. Naturally the hypothetical non-toxic bodies, which have been held to be responsible for the incapacity of 100 equivalents of antitoxic serum to account for 100 lethal doses of toxin bouillon, have been designated as the cause of this paralysis. It will be noted that bodies previously termed non-toxic (they are defined as inert but chemically active) have, to suit this interpretation, to become toxic and paralysis-producing bodies. In determining the absolute minimal lethal dose of diphtheria toxin bouillon the acutely fatal doses are succeeded by others which kill after long intervals up to three or four weeks. Among the guinea-pigs which die after three weeks there are occasionally some which die after the manifestation of paralysis. Some which manifest paralysis recover. I have made no special observations into this matter with toxin bouillon. The above observations have been made incidentally at various times. With a diphtheria toxin precipitated by means of sulphate of ammonium, however, I have been able to confirm the observations of Ransom in regard to the paralysing action of various fractions of the lethal dose of such a toxin. This simply means that doses of *toxin* less than the acutely lethal dose may produce paralysis, may indeed produce paralysis and death subacutely. It does not much matter whether the toxin used was contained in fluid diphtheria toxin bouillon, or in precipitated and dried diphtheria toxin bouillon. Some may, however, object that the precipitation of the toxin might modify it and therefore be responsible for the manufacture of a product able to bring about paralysis. Personally I do not entertain the validity of this objection. When these phenomena can be called forth by the toxic body itself, without the addition of antitoxin, I must confess that I do not see any necessity for assuming that the causative agent producing the same phenomena in the cases of doses of toxin imperfectly satisfied by antitoxin is due to a factor other than the toxin present in the bouillon. If the product of the reaction between toxin and antitoxin be able to react with a further addition of either of the latter, it may be that toxin partially chemically neutralised but not saturated with antitoxin gives rise to a product not indifferent to the organism. It would be speculation to ascribe the paralytic phenomena to the activity of this product when toxin alone can produce them. It seems to me that the facts ascertained, however, only justify us in concluding that by means of antitoxin the acutely lethal dose is reduced in its toxicity so that it ceases to be acutely fatal but remains sufficiently toxic to call forth the same paralytic symptoms as the before mentioned fraction of the lethal dose and for the same reasons. If not, then one is forced to the assumption that the fraction of the mere lethal dose which calls forth paralysis is able to effect the same degree of injury as can be effected by the sum-total of the difference between 100 and the actual number of doses which are rendered physiologically inert by 100 equivalents of antitoxin. This last seems a needless assumption.[6] I believe these paralytic symptoms were earliest described by Woodhead and Madsen at a date when the present widely disseminated hypothesis of immunity had not been enunciated, and it is interesting to observe that Madsen in describing the occurrence of paralysis in guinea-pigs which had received multiple doses of toxin imperfectly neutralised physiologically also accompanies his excellent description of this paralysis in guinea-pigs by an equally detailed description of paralytic phenomena noticed in a horse. In the case of the guinea-pigs the paralysis was induced by doses of toxin imperfectly "neutralised" by antitoxin; in the case of the horse, however, it was brought about by repeated injections of sub-lethal doses[7] of toxin alone. The toxin used by Madsen appears to have been toxin bouillon and not precipitated toxin.

It may be asked, Why is it that if sub-lethal doses of toxin alone produce paralysis this phenomena is so rarely seen in determinations of the lethal dose and so often found in experiments directed to determining the physiological neutralisation power of 100 equivalents of antitoxin? The answer is that in the latter case the doses are grouped in a manner which tends to bring into prominence the zone intervening between acutely lethal and non-lethal doses. In the case of the determination of the lethal dose the point to which attention is directed is at the other end of the scale, is the lethal issue, and nowadays a lethal issue within four days. If the zone within which such a pronounced effect as death occurs varies within very considerable limits it is extremely likely that the zone within which an effect manifesting itself after three or four weeks in such very delicate and varying degrees as the diphtheritic paralysis does will vary within wider limits, and guinea-pigs are not ideal animals in which to observe paralytic phenomena. Attention has been directed to the causation of death and the less pronounced manifestations at the other end of the scale of active doses have been very rarely studied.

The considerations contained in the preceding paragraphs show that it is not correct to require that if a certain quantity of antitoxin renders non-lethal a single fatal dose of toxin the hundredfold multiple of this quantity should render physiologically inert 100 similar fatal doses. In taking a large multiple of the fatal dose the fractions remaining potent are multiplied also. They become an agency which has to be reckoned with and may even become a multiple of the toxic power of the fatal dose itself. In cases where their effects become multiples of that of the fatal dose they are largely, if not entirely,

[6] Put otherwise, the relatively non-toxic modifications of toxin (toxoids, toxones, &c.) assumed to account for the paralytic symptoms of mixtures of toxin and antitoxin are unique among agents acting deleteriously on the animal body in that the severity of their action does not vary directly with the size of the dose, the same result being obtained by the fraction contained in the sub-lethal dose of toxin bouillon and by, e.g., more than 100 times that quantity when the action of the ordinary toxin is eliminated by addition of antitoxin.

[7] One is forcibly reminded of the relation of peripheral paralysis due to alcohol or arsenic to the acute poisoning by these agents.

responsible for the difference between 100 and the total number of fatal doses accounted for by 100 equivalents of antitoxin. Where they are augmented into sub-lethal effects they may become responsible for the occurrence of paralysis. This line of investigation of itself affords therefore absolutely no evidence of the presence in diphtheria toxin bouillon either of non-toxic modifications of diphtheria toxin which are still able to neutralise antitoxin, or of modifications of diphtheria toxin having the specific power of producing paralytic phenomena.

PART II.—SOME THEORETICAL CONCLUSIONS DRAWN FROM THE PHENOMENA MANIFESTED WHEN MORE TOXIN IS ADDED TO WHAT HAS BEEN DETERMINED TO BE A PHYSIOLOGICALLY NEUTRAL MIXTURE OF TOXIN AND ANTITOXIN.

The physiologically neutral mixture of toxin and antitoxin may be composed of any multiple of the lethal dose and the equivalent quantity of antitoxic serum. It has, however, become customary to take as a basis the hundredfold multiple of the lethal dose or, more correctly, to take what is regarded as being the hundredfold multiple of the quantity of antitoxin necessary to abolish the action of the simple lethal dose. The hundredfold multiples have been chosen by distinguished observers for the purpose of instituting a comparison with the phenomena and conclusions drawn from the abolition of the fatal action of a lethal dose of toxin by antitoxin and the absence of this abolition if the hundredfold multiples be taken. No attempt has been made by those who have made this comparison to show that it is a legitimate one. The following considerations will show that it is not. An explanation common to the two sets of phenomena compared in this way has been given on the assumption that they must be due to identical factors. It has been assumed that these phenomena are due to the different affinities for antitoxin of non-toxic or relatively non-toxic modifications of toxin. I have concluded that the line of investigation considered in Part I. gives no evidence of the existence of such bodies. The two phenomena compared are, however, not comparable in this way, for it will be shown that they are not due to identical factors but stand in no direct relation to one another. Some observations which I have made with diphtheria toxin and antitoxin in vivo and with ricin and its antitoxin in vitro have given distinct evidence that either (1) the proportion of antitoxin necessary to effect abolition of the action of a definite quantity of toxin is quantitatively in excess of the portion of toxin actually chemically neutralised, or (2) the product of the reaction between toxin and antitoxin is capable ultimately of modifying the action of higher amounts of toxin than the quantity with which the antitoxin reacts in the first instance.

In illustration of what has just been said the following experiments with ricin and its antitoxin (antiricin) may be given.

Ricin—Abolition of the Action of the Unit Clumping Dose means Interference with the Action of Higher Doses.

(*a*) *Determination of the unit clumping dose of ricin* (solution = 1 in 10,000 of 0·86 per cent. saline solution).

Solution of ricin 1 in 10,000.		5 per cent. blood suspension.	Result after two hours at 38° C.
1·0 c.c.	+	1 c.c.	Complete clumping.
0·75 ,,	+	,, ...	,, ,,
0·50 ,,	+	,, ...	,, ,,
0·35 ,,	+	,, ...	Almost, but not complete.
0·25 ,,	+	,, ...	,, ,, ,,
0·15 ,,	+	,, ...	,, ,, ,,

Conclusion.—0·5 cubic centimetre of 1 in 10,000 ricin clumps completely 1 cubic centimetre of the blood suspension.

(*b*) *Determination of dose of serum necessary to abolish the action of the above dose of ricin.*

Ricin 1 in 10,000		Serum 1 in 20.		Result after two hours at 38° C.
0·5 c.c.	+	0·20 c.c.	Remained 10 minutes at 38° C., then blood added as above.	Some clumping.
,,	+	0·25 ,,		Trace of ,,
,,	+	0·30 ,,		No ,,
,,	+	0·35 ,,		,, ,,
,,	+	0·40 ,,		,, ,,
,,	+	0·50 ,,		,, ,,

Conclusion.—0·3 cubic centimetre of serum dilution abolishes the action of the unit dose of ricin. In order to obviate the pseudo-antitoxic action of normal serum the serum was diluted 1 in 20.

(*c*) *Determination of the limits of action of 0·3 cubic centimetre of the serum dilution.*

Ricin 1 in 10,000.		Serum 1 in 10.		Result after two hours at 38° C.
0·50 c.c.	+	0·3 c.c.	Remained 10 minutes at 38° C., then blood added as above.	No clumping.
0·55 ,,	+	,,		Slight clumping.
0·60 ,,	+	,,		
0·65 ,,	+	,,		
0·70 ,,	+	,,		
0·75 ,,	+	,,		Gradually increasing clumping.
0·80 ,,	+	,,		
0·85 ,,	+	,,		
0·90 ,,	+	,,		
1·00 ,,	+	,,		
1·05 ,,	+	,,		Only moderate clumping.
Control ricin.		Serum 1 in 10.		
0·5 c.c.	+	0·3 c.c.		No clumping.

(*d*) *Confirmation of experiment* (*c*).—The conditions were the same as in (*c*) but here quantities of saline solution (0·86 per cent.) were added to each test-tube to raise the bulk to one cubic centimetre before adding the serum; this allows of stating the result in absolute quantities of ricin contained in one cubic centimetre in each tube.

Ricin 1 in 5000.		Serum 1 in 10.		Result after two hours at 38° C.
0·25 c.c.	+	0·3 c.c.	Remained 10 minutes in incubator at 38° C., then blood added as above.	No clumping.
0·30 ,,	+	,,		(?) Slight clumping.
0·35 ,,	+	,,		
0·40 ,,	+	,,		
0·45 ,,	+	,,		
0·50 ,,	+	,,		
0·55 ,,	+	,,		
0·60 ,,	+	,,		Gradually increasing clumping.
0·65 ,,	+	,,		
0·70 ,,	+	,,		
0·75 ,,	+	,,		
0·80 ,,	+	,,		
0·85 ,,	+	,,		
0·90 ,,	+	,,		
1·00 ,,	+	,,		Very strong but not complete clumping.
Control ricin.				
0·25 c.c.	+	Saline + blood		Complete clumping.
0·25 ,,	+	Serum 1 in 10, 0·3 c.c. + blood.		No clumping.

Conclusion from experiments (*c*) and (*d*): The quantity of serum which abolishes the action of 0·05 milligramme of ricin also interferes with the action of much higher doses of ricin.

The experiments were performed with the red blood corpuscles of the rabbit after centrifugalising free from serum and suspending them in 0·86 per cent. saline solution. The antitoxic serum was also derived from a rabbit. As is well known, ricin clumps together the red blood corpuscles of the rabbit. In the first instance one determined the smallest dose of ricin able completely to clump one cubic centimetre of the blood suspension after two hours' contact in the incubator at 38° C. Then in another series to it varying quantities of the antitoxic serum were added to this dose of ricin as a constant quantity. After the serum and the ricin had remained in contact for ten minutes in the incubator* the blood was added and after two hours in the incubator the degree of clumping was noted. In this way the smallest dose of antitoxin able to abolish the clumping action of a dose of ricin taken as unity was determined. In two other series the quantity of antitoxic serum thus determined remained constant; the quantities of ricin varied. The results showed that the smallest quantity of antitoxin (antiricin) able to effect abolition of the action of the dose of ricin taken as unity was also able to modify the effect of much larger doses of ricin when the experimental conditions were altered. For in the two series with varying doses of ricin abolition of the action of the dose of ricin taken as unity also involved an extension of the abolition much further up the series of doses of ricin. Where one would have expected the unit dose of ricin to be again "free" to act—e.g., at two or three times unity—the action manifested fell much behind that of the unit dose of ricin. From this experiment, which has been confirmed by many repetitions, I draw the conclusion that either (1) one must make the assumption that the proportion of antitoxin necessary to effect abolition of the action of a definite quantity of ricin is quantitatively in excess of the proportion of ricin actually physiologically neutralised, and of this

* This duration was chosen to obviate fallacies arising in precipitation of the constituents of the ricin solution by the antiricin serum.

there is no evidence; or (2) that the product of the reaction with the smaller quantity of ricin is capable ultimately of taking up a higher amount of ricin than that quantity with which the antiricin reacts chemically in the first instance and that neither in the case of the smaller nor of the larger doses of ricin within a definite range of doses is there free ricin or free antiricin.

In the above experiment the toxin was ricin and the experiment was performed in vitro. In the case of diphtheria and tetanus toxins and antitoxins I have met with phenomena of a similar nature and such as have been recorded especially by Knorr and by those who have advanced the views under criticism. When more toxin is added to what has been determined to be a physiologically neutral mixture of toxin and antitoxin it is necessary in order to obtain again the full action of the dose of toxin taken as unity to add, not one unit of toxin, but several; the reasons are possibly identical with those obtaining in the above experiment with ricin. In the case of ricin the full effect of the dose of ricin taken as unity was in the presence of antiricin not obtained again till more than three times this unit was present. In the case of the experiments with diphtheria toxin and antitoxin a physiologically neutral mixture (made on the basis of hundredfold multiples) was not converted into a mixture able to produce again the effect of the dose taken as unity till more than three times the latter quantity of toxin had been added. This was the smallest quantity which caused the full effect to be reproduced and obviously the considerations in the first part of this paper will have made it evident that the quantity required to produce this effect will vary in proportion to the amount of unavoidable error in determining what was a physiologically neutral mixture. It has been demonstrated in Part I. that what is defined as a physiologically neutral mixture is no constant quantity but that by this term a whole series of mixtures (in which at one end there is present a qualitative excess of antitoxin and at the other end just enough antitoxin) are equally well designated and, indeed, are indistinguishable by any methods at our command. These experiments lead to the natural conclusion that a constant volume of a solution of antitoxin reacts in more than one quantitative relation with volumes of toxin as illustrated here, especially for ricin.

No further explanation is needed in order to point out the absolute difference and entire independence of the phenomena which are responsible on the one hand for the abolition of the fatal action of a lethal dose of toxin by antitoxin and the absence of this abolition if the hundredfold multiples be taken; and, on the other hand, the necessity for adding more than one unit of toxin to what has been determined to be a physiologically neutral mixture of toxin and antitoxin in order that the full effect of a unit of toxin may be again manifested. It will now be evident that any attempt to explain these distinct phenomena by making them dependent upon the same causative factors must be wrong. In particular the view that the factors in both instances are non-toxic or relatively non toxic modifications of toxin of the same, a greater, or a less affinity for antitoxin than is characteristic of the toxin, is not in accordance with the facts. The assumption that the existence of physiologically inert but chemically active modifications of toxin causes the apparent non-fulfilment of the law of multiples must be given up, although it is hypothetically adequate to account for the phenomenon, and the explanation sought in the unavoidable experimental errors of a qualitative and quantitative nature and in toxin and antitoxin reacting with one another in more than one fixed proportion.

CONCLUSIONS.

In investigating toxin alone it has been shown that—

1. The volume containing the lethal dose can be converted into one no longer lethal within the time limit by diminishing the total volume by a small but measurable fraction of the whole.

2. A measurable quantity of toxin solution can be borne without the production of any symptoms.

Both these effects can be obtained in a different guise when one is dealing with a mixture of toxin and antitoxin, for it has been ascertained that—

3. The poisonous action of the lethal dose may be abolished within the time limit by the addition of a very small quantity of antitoxin; the experiment gives evidence of a qualitative reduction in the toxicity itself, but no evidence of the occurrence of the quantitative reduction referred to in conclusion 1.

4. When the toxic power of a quantity of toxin has been reduced by antitoxin to such an extent that no symptoms appear a measurable degree of toxic power is still potent qualitatively, but we are not entitled to state this in the quantitative terms of conclusion 2.

It has further been found that—

5. The lethal dose is separated from the non-lethal not by a hard-and-fast line but by a zone wherein are contained appreciable fractions of the lethal dose; the data here are quantitative.

6. In mixtures of toxin and antitoxin in such proportions that a lethal issue occurs and does not occur, the margin between the toxic powers of such mixture is not sharp but is a zone, and the actions standing at the upper and lower limits of this zone differ from each other by a measurable fraction of the total toxicity; the data here are purely qualitative.

7. It is not justifiable to assume *a priori* that one volume of antitoxin solution always fully accounts for one volume of toxin solution when mixed in varying multiples. This presupposes that quantitative excess of either is possible and measurable, and ignores the fact that we cannot estimate the quantitative and chemical relations of toxin and antitoxin, but merely the qualitative physiological characters of the mixture, and this only when the toxic power present is manifestly in excess. It is preferable to speak of the retention of active toxicity or of active antitoxicity in characterising such mixtures. The phrases "free toxin" and "free antitoxin" may not be in accordance with the facts and should be abandoned.

8. The above facts indicate the limitations within which it is possible to determine the volume of the lethal dose of toxin and the volume of antitoxic serum sufficient to abolish its lethal action—i.e., the qualitative determination of a physiologically neutral mixture of smallest bulk. If the volumes thus determined be merely multiplied one hundredfold a qualitative indication of the amount of the experimental error present in the original determination is obtained, but no basis for deductions as to the quantitative and chemical relations existing between the toxin and antitoxin contained in the reacting volumes. The assumption that data thus obtained permit of conclusions of a far-reaching nature as to the quantitative relations and intimate chemical nature of the reaction involves a confounding of the abstract with the concrete.

9. The smallest quantity of antiricin which just suffices to abolish the action of a unit dose of ricin, that is the smallest qualitative equivalent of the latter, modifies the action of higher doses of ricin. This shows that the unit dose of ricin is but one of a series of doses to which this quantity of antiricin has a qualitative relation and the fact can only be interpreted as proving that one and the same volume of antiricin has quantitative relations with more than one volume of ricin. At one end of the scale of doses of ricin, with which qualitative relations exist, there will be active if modified antitoxicity, as, e.g., with the unit dose of ricin, and at the other end active if modified toxicity, but neither ricin nor antiricin is really "free." The phenomena noted for mixtures of diphtheria toxin and antitoxin and for tetanus toxin and antitoxin are exactly comparable to those obtained with ricin and antiricin and are to be explained by the existence between these toxins and antitoxins of similar quantitative relations in accordance with which they react with one another in more than one fixed proportion.

The results on which this paper is based were obtained previously to November, 1902, and have already been communicated to the scientific assessors of the Worshipful Company of Grocers; other duties have interfered with earlier publication. In a recent number of the *Annales de l'Institut Pasteur* Bordet has announced similar results. Bordet followed different lines of investigation and his results were of a nature to warrant him drawing more definite and far-reaching conclusions than I feel justified in making at present.

Harley House, W.

ROYAL DEVON AND EXETER HOSPITAL.—In accordance with ancient custom the committee and governors of this hospital, accompanied by the mayor and corporation and representatives of other public bodies will go in procession on Sunday afternoon, Oct. 18th, to Exeter Cathedral where a sermon will be preached by the Rev. Chancellor Edmonds and a collection will be made on behalf of the funds of the institution.

A CASE OF UPWARD DISLOCATION OF THE FOOT.

BY PERCY W. G. SARGENT, M.A., M.B., B.C. CANTAB., F.R.C.S. ENG.,
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I AM indebted to the late Professor William Anderson for permission to make use of the following case which was admitted to St. Thomas's Hospital under his care in 1899. It appears from the literature of the subject to be an accident of extreme rarity, the salient features of the case being that the astragalus, retaining its normal relations with the foot, was driven upwards between the tibia and fibula without fracture of either bone.

The patient was a short muscular man, aged 46 years, a carman by occupation. He fell from a loft, a distance of about nine feet, and alighted on the soles of the feet upon a heap of stones, falling to the ground immediately and twisting his foot in so doing. There was no history of any previous injury or disease of the joint. On examination, as the patient lay on his back upon the couch with the legs extended, the right foot rested on its outer border, having been rotated at the ankle through a complete right angle. The relations of the tarsal and metatarsal bones to one another were unaltered. The tibia lay in its natural position, the crest and internal malleolus being markedly prominent, whilst the fibula was displaced backwards. The inferior articular surface of the tibia could be distinctly felt beneath the tightly stretched skin which was in no place lacerated. The heel was markedly prominent. The illustration from a plaster cast taken shortly after the accident (see figure) shows the widening between the malleoli, which amounted

From a photograph of a plaster cast of the foot taken shortly after the accident.

to over two inches, and the approximation of the malleoli to the plane of the sole. No evidence of fracture could be obtained either by manipulation or by means of the x rays as seen in a skiagram which was taken by the late Dr. Barry Blacker. The foot was firmly fixed in its new position. Under an anæsthetic the dislocation was readily reduced by simple traction on the foot. Massage and passive movements were begun on the third day and the patient was able to walk with only a slight limp at the end of three weeks. He subsequently made a complete recovery.

The dislocation appears the more remarkable when the enormous strength of the ligaments uniting the lower extremities of the tibia and fibula is considered. As described by Mr. Henry Morris[1] these are: (1) inferior interosseous, a dense felted mass of short fibres passing transversely one and a half inches in depth, and extending between (2) the anterior and posterior inferior tibio-fibular ligaments; and (3) the transverse inferior tibio-fibular ligament. Experimentally on the dead subject the dislocation could not be imitated until not only these and the lateral ligaments of the ankle but also the lower part of the interosseous membrane had been divided. In spite of their great strength these ligaments must have been ruptured, since there is no evidence that any portion of either bone was torn away. As the superior articular surface of the astragalus is wider in front than behind extreme dorsal flexion of the foot puts these ligaments upon the stretch and tends to separate the tibia and the fibula. If now the foot is so fixed as to prevent movement at the mid-tarsal joint and then forcibly everted as a whole, the tendency is still farther to separate the two bones and also to bring the outer edge of the upper articular surface of the astragalus against the inferior tibio-fibular ligaments. In this position if force is applied upwards to the foot this edge of the astragalus will form the thin edge of a wedge and thus the whole bone can be forced upwards, separating the tibia from the fibula. In the present instance the foot was rotated outwards through a right angle and the fibula displaced backwards, so that a further movement of supination must have taken place at the superior tibio-fibular joint. There was no evidence of dislocation at that joint or of fracture of the fibula.

I have been able to find only one similar case recorded. This one, of which there is a cast in Guy's Hospital Museum, is described by Bryant[2] It occurred in both feet simultaneously, in a man, aged 38 years, who fell from a scaffold. The malleoli were widely separated and projected; the depth of the foot from the malleoli to the plane of the sole was lessened and there was no evidence of fracture. The feet were firmly fixed in the abnormal position and reduction being found impossible the patient recovered with stiff joints. Bryant[3] also mentions a case of a similar nature but complicated with fracture of the astragalus. In Treves's "System of Surgery"[4] Mr. A. Marmaduke Sheild describes the accident as being excessively rare and points out that fracture of the malleoli may complicate it. Mr. G. H. Makins[5] remarks that there is some doubt as to whether in such cases the separation of the tibia and fibula is not actually due to an oblique fracture of the tibia; and notes that reduction has proved extremely difficult or impossible. Hamilton[6] speaks of a lateral dislocation of the tibia from the fibula at the lower end, where the fibula may remain unbroken and undisturbed, the tibia having become displaced inwards. He points out the rarity of absence of fracture and notes that the injury is usually compound. Boyer[7] writes: "I have had the opportunity of seeing an incomplete dislocation of the astragalus upwards ('en haut') and inwards in a man who had fallen from a horse," but no mention is made of fracture. This also remained unreduced. Nélaton[8] says: "The upward dislocation necessitates at the same time a fracture of the fibula, and a separation of its inferior extremity from the tibia. The astragalus retains its normal direction but is raised between the two bones." He also points out the increase of the intermalleolar measurement, the proximity of the malleoli to the sole, and the immobility of the foot. Benjamin Anger[9] quotes Nélaton as to the name "luxation en haut" but gives neither description nor instance. He describes a case of "dislocation by rotation," the foot having been turned outwards through a right angle but without separation of the tibia and fibula.

Summary.—The chief points of interest in this case, some of which can be observed in the reproduction of a photograph

[1] H. Morris: A Treatise on Anatomy, article "The Articulations."
[2] Bryant: System of Surgery, vol. ii., p. 838.
[3] Loc. cit.
[4] Treves: System of Surgery, vol. ii., p. 1020.
[5] International Text-book of Surgery, article "Dislocations."
[6] Hamilton: Fractures and Dislocations, p. 773.
[7] Boyer: Traité des Maladies Chirurgicales, p. 406.
[8] Nélaton: Pathologie Chirurgicale, tome iii., p. 292.
[9] Benjamin Anger: Traité des Maladies Chirurgicales, article "Luxations et Fractures."

of the cast, seem to be: (1) the increase of the intermalleolar measurement; (2) the prominence of the heel; (3) the approximation of the malleoli to the plane of the sole; (4) the absence of fracture; (5) that the injury was not compound; and (6) the extreme ease with which reduction was effected.

NOTE ON A CASE OF RENAL CALCULUS.

BY H. E. BRUCE PORTER, M.R.C.S. ENG., L.R.C.P. LOND.

THIS note upon a case of suppuration of the right kidney caused by a calculus which first gave rise to symptoms 12 years ago and which for the whole time was mistaken for sciatica may be interesting in the light of recent correspondence in THE LANCET upon sciatica.

The patient, a woman, aged 35 years, sent for me early in 1901. When asked what she complained of she seemed to make light of her trouble, replying, "Oh, it is only a touch of my old friend sciatica." As the patient was to my mind rather young to have old friends of such a nature my next query was, "When did you first have sciatica?" I was informed 12 years ago and that it was so bad that she was in bed for some weeks, her then medical attendant devoting much thought to the case and using every means in his power to cut short the attack. As the treatment had no effect on the disease she was sent to the German baths and spent the best part of three years seeking relief without much success. My next query was, "Please tell me about your present attack." The patient replied that she had lunched out and drove home in a dogcart; she felt rather out of sorts and during the night had a shivering fit which returned off and on for some hours. The pain was of a dull character in the right side, there was frequent micturition, and her temperature was 102° F. The right kidney seemed the most probable seat of trouble and it was felt to be enlarged and tender; there was no tenderness over the sciatic region. I now returned to the history of the sciatica of 12 years or so ago. The onset of this was sudden while out walking and, in the patient's words, she walked home doubled up with pain. This did not sound like sciatica. Everyone knows how a patient with this trouble walks—certainly not doubled up. The pain ran down the inside and outside of the thigh and at times was in the sole of the foot. It was not affected by the position of the leg—in fact, as she put it, the pain made her squirm. The first attack lasted, as I have said, off and on for three years and during this time she believed that the urine was examined; she had never noticed blood in it. For the last nine years she had always had an uncomfortable feeling in her right side and occasionally attacks of "sciatica" (?). During these attacks she had noticed the urine to be thick but took no particular notice beyond observing the fact.

The patient was married about four years ago and was pregnant for the first time 12 months later. When three months pregnant the pain in the right side became worse; she also had so much swelling of the hands that she could not wear her rings; she was given to understand that this was due to her pregnancy and her urine was not examined. The pain in the right loin during the later months of pregnancy was worse but was all put down to the uterus. Since the birth of her child she had had to give up many of her pursuits and from being active became the reverse. At times she was unable to bear anything tight around the waist. The lungs were quite healthy and there were no signs of wasting—in fact, considering the history the patient was very well nourished. There was no history of phthisis. I ordered the whole of the urine passed during the next 24 hours to be saved in one vessel, the clear portion to be poured off, and the sediment to be sent to me. This contained one-sixth albumin; a few pus cells were to be recognised under the microscope but no blood or crystals except urates. I came to the conclusion that the case was either calculous kidney or tuberculous disease of the kidney, that the attack 12 years ago had been renal colic, and that during pregnancy the change had become more rapid in the breaking down of renal tissue. I advised complete rest and also advised the husband to have a second opinion, pointing out that the urine ought to be examined by a bacteriologist to exclude as far as possible the tuberculous cause.

Dr. Archibald E Garrod made an examination. In the urine of the second 24 hours there was more pus (about three drachms). He agreed with my view of the case and took a specimen of urine to town to have it examined for tubercle. It was found free from tubercle and though the negative result did not exclude the possibility of tuberculous disease it was an additional point as there was no evidence of trouble in the chest, and the history of what we were both agreed was an attack of renal colic 12 years previously made us hope the case would prove to be one of calculous kidney. The temperature varied between 102° F. at night and 100·4° in the morning. On Feb. 25th the patient's child being put on the bed pressed against the damaged kidney, the result being that the swelling was much greater. It could now be seen as an oblong tumour in the right side of the abdomen. On the morning of the 26th, as the pus was not coming away freely enough, hot fomentations were applied. On the 27th the pus was coming away more freely. Sir Frederick Treves came to see the patient to decide when he would advise operation. He confirmed by his examination of the case and history the view taken by Dr. Garrod and myself—i.e., that the trouble began with an attack of renal colic which was then taken for sciatica. He decided that it was a case for removing (when the active stage had passed and the temperature had become normal) what was a serious menace to life. Pus continued to come away and on May 6th the patient's temperature touched the normal line in the morning, rising to 99·4° at night. As it was necessary to have the patient in a surgical home in town for the operation I allowed her up for one hour on the 8th. The temperature went up to 99·6° in the evening. On the 9th the temperature was again normal. The patient was up for three hours. The temperature on going to bed was 101° but came down after she had been in bed about an hour. On the 11th I took the patient to town and she stood the journey well. On the 13th Sir Frederick Treves operated. The organ was removed from the front; an incision was made along the right semilunar line for a considerable extent. The other kidney was examined and found to be quite healthy; the ovaries were also felt and found to be healthy; the right kidney was adherent at the upper end so the lower was delivered first. It is not necessary to describe the various steps of the operation, so I will content myself with saying that the wound was closed without the insertion of a drainage-tube and the patient was taken back to bed. The kidney was a mere shell of pus; there was not a trace of renal tissue left. It contained at least 15 ounces of pus. The calculus which had evidently started the trouble had become quite disintegrated. The patient had a good night and the urine passed was quite healthy. The patient made a good recovery except for the delay caused by the formation of an abscess in connexion with the stump of the ureter. About ten months later the patient became pregnant and this pregnancy was free from the pains, &c., of the former one. The child was born at term. I think the case of interest as showing that in a young woman the symptoms caused by a renal calculus had given rise to the idea that she was suffering from sciatica. The patient is now in perfect health and certainly looks and feels years younger.

Windsor.

THE TREATMENT OF SCIATICA.

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MY reason for writing this short paper is that I believe that the Weir-Mitchell method of treatment of sciatica by immobilisation of the affected limb by means of the long splint is not so generally employed as it deserves to be. It is true that there are references to the method in some of the text-books but they are brief, and although Dr. I. Burney Yeo gives a longer and more satisfactory description in the last edition of his "Manual of Medical Treatment," it does not seem to be generally known that obstinate and protracted cases of sciatica can be successfully dealt with in this way. It is not my intention to enter into the discussion of what is the exact nature of sciatica but to confine myself to a brief statement of my experience of this particular

mode of treatment in severe cases of this very troublesome complaint.

Although in its mild forms, and when of short standing, sciatica easily yields to constitutional and local treatment of various kinds, in its severer varieties it is one of the most intractable maladies with which we have to do, trying the patience alike of physician and patient. Every now and then a patient, most frequently a male, presents himself suffering from this most painful complaint which has incapacitated him from work for a longer or shorter period and for which he has generally tried many forms of treatment, both regular and irregular. If the patient has to earn his living he generally tries to go on as long as possible in spite of pain or with only partial relief from remedies. I believe it is this neglect in the early stages that makes the disease in certain cases so intractable and difficult of cure. So long as there is any pain the complaint is not cured and is liable to relapse from a mild into a severe form. It was whilst treating a severe and long-continued case in which many measures had been tried without benefit that I first employed Dr. Weir-Mitchell's plan of treatment and this was completely successful. Since then I have carried it out in all severe cases of sciatica that have come under my care. For mild cases and for those that come under treatment just after the onset it is hardly necessary, though in the latter if the pain is very acute it is effectual in relieving the symptoms and it does so quickly.

The details of the treatment will be found in a most instructive paper on sciatica in Dr. Weir-Mitchell's Clinical Lessons on Nervous Disease,[1] where he emphasises as the essential point that the splint must check motion at the hip and the knee. The leg is first carefully and evenly bandaged with a firm flannel bandage from the hip to the knee. A long splint is then applied, the knee being in slight flexion, and bandaged on with flannel bandages and secured round the trunk by two or three broad bands. The heel must, of course, be carefully supported. In my own practice the limb is left untouched for the first three days, or if it is uncomfortable the bandages are taken off and reapplied with as little disturbance as possible. In any case this is done once a day after five days, and after five or six days gentle passive movement of the joints is made at the same time. When the patient has been free from pain for some days, generally at the end of two or three weeks, or longer in a severe case of long standing, the splint is left off by day and reapplied at night. Then the splint is discontinued altogether, the leg being still kept bandaged, and after another week or less the patient is allowed to get up. I have followed Dr. Weir-Mitchell in the above stages of treatment and in taking the absence of pain as the indication to pass from one to the other, and also have followed his valuable caution that when a patient with sciatica first gets up he should stand or lie but not be allowed to sit. When the splint is first left off by day massage of the limb may generally be begun and as in these severe cases the muscles are flabby and wasted it is of great advantage in hastening the restoration of the use of the limb.

I may briefly mention, without going into details, the result of the last 12 consecutive cases of severe sciatica treated in hospital in this way. 11 of the patients were men, their average age being 49 years. The longest time the disease had lasted was 21 months and the shortest time was seven weeks. The average duration before coming into hospital was 23·6 weeks the average duration of treatment in hospital was five and a half weeks, and the average time from admission until the splint was left off entirely (by night as well as by day) was 25 days. As showing that the cases were severe I may point to the duration, the facts that from the great pain caused by movement four of the patients were carried in unable to walk at all and a fifth could only hobble a few steps with help, that in ten the muscular wasting was marked, and in four there was defective sensation on the outer side of the leg.

Ten patients were cured. One had a severe relapse some weeks later but was cured by a second course of treatment. One was not relieved; he was a restless, impatient man and would not submit to keep the splint on. It will be noticed that the patients only stayed a short time in hospital after they were allowed to get up; a few of them attended for a short time afterwards as out-patients in order to go on with the massage. It seems to me that the result in these cases as to cure and as to the duration of stay in hospital—the latter an important consideration both to the hospital and to working-men patients—is satisfactory.

In patients of the well-to-do classes I have had equally good results. A cure was effected in one man who had suffered from sciatica almost continuously for ten years and he has remained free from pain and able to walk about since the treatment four years ago. In his case the time under treatment was longer than in those given above.

The restraint of the splint is trying to nearly all the patients and extremely irksome to some and the pain may be considerable for the first 24 to 48 hours. With some patients considerable persuasion is required during the first two or three days to induce them to go on with the treatment. A hypodermic injection of morphia is often necessary on the first night and sometimes on the second, but not, in my experience, afterwards. By the third to the fifth day there is great relief and the patients begin to sleep well; indeed, in favourable cases the acute pain is not felt after the third day. If the pain persists it often does so behind the outer malleolus of the ankle or in the foot. This sometimes means that a readjustment of the support is required.

In the more neurotic patients who come into the hospital and in private patients one of the chief difficulties is at first flatulent dyspepsia. Many sufferers from sciatica have already been troubled with this before they come under treatment and it is then aggravated by the enforced rest. Very careful feeding and a light diet are therefore better in all cases at first and afterwards the latter can be gradually improved, for as liberal a diet as the patient can digest is generally advantageous. Lastly, care must be taken that the bed is flat and even and that there is a firm basis of support under a flat mattress. The limb must be absolutely at rest in its whole length and failure to secure this will prevent a successful result. A short course of massage, tonics, and cod-liver oil are advantageous to complete the cure.

I think I have given a fair account of my experience of this method of treatment, and if I have seemed unduly to emphasise small details it is because they are essential, as in many other matters, to success.

Clifton.

[1] Lea Brothers and Co., Philadelphia and New York, 1897.

A CASE OF

INFANTILE ACUTE ECZEMA; HÆMATEMESIS; DUODENAL ULCER; DEATH.

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I DESIRE to put this case on record on account of the unique character of the lesion and the fact that I have been unable to find in the literature of the subject a recorded case of duodenal ulcer following eczema, which I believe in the present case are related to each other and analogous to the cases of duodenal ulcer following severe burns.

The patient was a baby, aged eight months. At birth he was well nourished and fully developed. He was breast-fed till seven months old. When about two months old he began to suffer from eczema capitis which persisted more or less during the latter months of life. Vaccination was performed at the fifth month; this ran a normal course and had but little influence on the eczema. About the sixth month the face became eczematous with considerable leeting. The left submaxillary gland became swollen and the skin became inflamed as if suppuration was imminent. The swelling, however, subsided by resolution. When seven months old the child was weaned, as the mother at that time was suffering from acute rheumatism. The artificial diet—Mellin's food and milk—on which he was put did not do so well as the mother's milk. On April 2nd, 1903, when eight months old there was an exacerbation of the eczema which took on a virulent form, affecting the head, the face, the neck, and to a slight extent the trunk. From this time onwards the child seemed to go back in every way; soothing applications failed to arrest the intensity of the affection. The patient, previously happy and contented, became peevish and fretful. On the 3rd I saw him and found that the state of the head and face was becoming rapidly worse, but the

eruption over the trunk had by this time faded entirely. The temperature was subnormal; the pulse was small and 140 per minute; the respirations were 30; and the feet and hands were cold and pallid. The face and head for the first time now assumed a livid colour. The eyes could not be kept open owing to the œdematous swelling of the eyelids which had supervened. I found on cleaning away purulent exudation from the closed eyes that the skin was abraded with the gentlest swabbing. On the 5th I called in the morning and found the child asleep in his father's arms; the discharge from the head had exuded copiously on to the father's shirt-sleeves. When I removed the shawl which was adhering to the head of the little patient I found that the scalp was simply reeking with vapour. I observed further that the character of the eruption had undergone a change: the vesicles or pustules were now enlarged to the size of a split pea; these were purulent, raised, discrete, and impetiginoid. Besides the mass over the scalp and brow there was an extension of the pustules to the cheeks, the chin, and to a less degree to the neck, but there was still no eruption on the trunk. Towards evening the child rapidly became worse and at 3 A.M. on the next morning he vomited some blood and from this time the motions were tarry. He drew up his little legs continually and often passed his hands down on the abdomen as if in pain. There were considerable vomiting and retching. On the 6th the patient had a restless day and at midnight he seemed to be sick and vomited milk on two occasions. The bowels were moved just about the same time; the motions were again tarry. He then vomited "some dark-like material." The child's hands were clenched, he lay much distressed, and the feet were cold. On the 7th, at 1 A.M., he vomited some blood which was red in colour. In order to relieve the retching a poultice was placed over the stomach and sips of iced water were given by the mouth. He settled down and was quiet thereafter for several hours. During the day, however, retching of a severe nature returned. He became very restless; at 5.30 P.M. he was looking very ill; the head and face became bluish black. His strength was slowly slipping away and a gurgling sound was occasionally heard. A few sips of whisky and iced water had been given to him during the day. At 10 P.M. he vomited a single mouthful of bright-red blood. There was no special retching before this last and fatal vomit, but subsequently he spat a little and lay down quietly for some time apparently in a collapsed condition. When raised up at any time he cried as if in pain and at times placed his left hand over the left side of the abdomen. He was laid down on his right side about 1 A.M. and at 2.30 A.M. a movement was heard of something passing down the bowels. He gave a sharp cry of pain, after which he became quiet, but it was noted that the eyes rolled about and twitching of the mouth ensued. He died at 3 A.M. on the 8th.

I have to record my thanks to Dr. John Anderson, pathologist to the Victoria Infirmary, Glasgow, for making the post-mortem examination for me and I append a summary of his report. From external appearances the patient was a well-developed and well-nourished child. Rigor mortis was pronounced. The pupils were equal and of medium size. Eczema of the face and head was present. As to the thorax, the pericardium was healthy. The heart was of normal size and appearance, the chambers presenting healthy characters. A small quantity of clot was found in the right ventricle. All the valves presented normal and healthy appearances. There was a tiny patency of the foramen ovale. The heart muscle was of good colour and consistence. The lungs were non-adherent and apart from a slight degree of congestion of the bases presented remarkably healthy appearances. With regard to the abdomen a few ounces of blood-stained fluid were found in the general peritoneal cavity. No evidence of peritonitis could be found. In the lesser sac of the peritoneum was found a large-sized piece of clot filling practically the entire space. The posterior wall of the stomach and surface of the pancreas on which it rested showed presence of fibrinous exudation. A round ulcer situated on the posterior wall of the duodenum just beyond the pylorus was made out. The ulcer had perforated and the perforation was of about the size of a split pea with punched-out edges and directed towards the lesser sac of the peritoneum (see figure). The stomach contents were chiefly of the nature of altered blood. The stomach presented healthy appearances; the mucous coat was rugose and slightly congested. The intestine was examined throughout and apart from blood-staining of the contents showed healthy appearances. The liver was of normal size and slightly cloudy in appearance. The spleen was healthy. The kidneys and adrenals were healthy in appearance.

Illustration showing the stomach and duodenum of the child. The place where the perforation occurred is indicated by the wooden probe *in situ*.

The skin of a child is relatively greater in area than that of an adult in its ratio to the body weight, hence a cutaneous lesion predisposes infants to constitutional disturbances of greater intensity and may be expected to tell more severely upon them. This may be due to impairment of the function of the skin, to nerve irritation, to destruction of red corpuscles or leucocytes, or to absorption of toxins from the disintegration of the blood corpuscles. I am disposed to regard the occurrence of the duodenal perforation in this case of eczema as due to the same contributory causes which we find to obtain in some cases of burns. In both there is a like destruction of the function of the skin and the soluble fibrin ferment in both cases readily gaining entrance to the circulation will conduce to the formation of emboli which results in a partial necrosis of portions of the duodenal mucous membrane.

Cases of duodenal ulcers have been recorded after burns as already mentioned, after frost-bite, and in erysipelas, pemphigus, and septicæmia. In those due to infective processes bacterial influences obviously play an important part.

The etiology of duodenal ulcer and its relationship to cutaneous burns.—As bearing upon the above case it is interesting to consider the remarkable coincidence of burns of the skin with ulcers of the stomach and duodenum in young subjects first observed by Curling[1] who was able to collect no less than ten cases; since then, according to Dreschfeld,[2] the subject has been investigated by several observers, especially in England, with the result that though the occasional appearance of an ulcer after an extensive burn has now been well established the occurrence is certainly very rare. In 125 cases of severe burns Holmes[3] found the duodenum ulcerated in 16 and other portions of the intestine in two. The earliest appearance of the ulcer was from four to six days after the burn. Perry and Shaw[4] noticed it five times in 149 necropsies of cases of burns. It is further established that these ulcerations occur chiefly in young subjects and more especially when there are extensive burns of the trunk; that the ulcer occurs in the second or inflammatory period of the burn; and that before ulceration occurs there is marked congestion followed by hæmorrhagic infiltration which affects

[1] Curling: On Acute Ulceration of the Duodenum, Transactions of the Royal Medical and Chirurgical Society, vol. xxv., p. 260.
[2] Dreschfeld: Allbutt's System of Medicine, vol. iii., p. 548.
[3] Holmes: System of Surgery, vol. i., p. 733.
[4] Perry and Shaw: Guy's Hospital Reports, p. 171, 1894.

other parts of the alimentary tract besides the duodenum. In several cases the lesion did not go beyond a hæmorrhagic infiltration; in other cases, an ulcer forms which may lead to a perforation or to profuse hæmatemesis. The formation of the hæmorrhagic infiltration is most rationally explained by a septic embolus and the change into an ulcer by the action of the gastric juice. The nature of the ulcer is similar in character to the gastric ulcer, round or oval, punched-out appearance, with little inflammation of the periphery, and microscopically shows the same condition—more of a necrosis than inflammatory round cell or new cell formation. The ulcer is situated in the first part of the duodenum and above the bile papilla and is therefore classifiable with the gastric ulcer. It falls, then, under the same group of causes. It may arise from mechanical, chemical, thermal, &c., agencies; bacterial necrosis has been said to play an important part, while in the case of burns the destruction and emboli formation of red corpuscles have been assigned an important place.

Micro-organisms have been brought forward as the cause of gastric ulcer. Letulle[1] found numerous streptococci in the veins of the submucosa and of the uterus in a case of recent ulcer of the stomach which appeared during the course of puerperal septicæmia. Pure cultures of these injected into guinea-pigs also caused ulcerations in the stomachs of the animals and these threatened to perforate the walls of the distended organ. Letulle obtained the same result in four cases with staphylococcus pyogenes aureus cultivated from various abscesses and in one case with the microbes of dysentery. Experiments by Ponfick and others have shown that in animals extensive scalds will cause a destruction of red blood corpuscles similar to that seen on injecting toluylendiamin. Dr. W. Hunter succeeded in producing extensive ecchymoses and ulcers of the duodenum in dogs by injecting toluylendiamin and suggested, as a probable explanation of the duodenal ulcer in burns, the secretion, with the bile, of a poison which causes the ecchymoses and ulceration. Virchow's view that the process may result from plugging the nutrient artery of the part, either by an embolus or by a thrombus, and that the infarct so produced is destroyed by the gastric juice, has gained general acceptance. There is obviously a local disturbed nutrition over a circumscribed area. The corrosive action of normal gastric juice plays an essential rôle in attacking the spot deprived of its vascular supply just as under favourable conditions it leads to softening and digestion of the dead tissue of the stomach. If the gastric juice meanwhile has become hyperacid and cannot be neutralised till it meets with the pancreatic secretion, this will readily explain why round ulcers are so prone to occur in the duodenum. Ebstein,[2] making use of a discovery of Schiff, produced gastric hæmorrhages and corroding ulcers, and even perforation, by injury to the anterior corpora quadrigemina and it has been assumed that the excessive production of acid secretion in these cases was due to cerebral irritation.

The relationship of the eczema to the lesion.—It was noticed in the last three days of the child's life that the eczema was characterised by a virulent exacerbation—that the septic condition of the skin had become intensified, enabling the flora of the skin to assume fresh activity from the increased pabulum. The lesion had merged into eczema pustulosum—eczema impetiginoides due to secondary inoculation of the inflamed skin by pus cocci; this is to be distinguished from impetigo contagiosa by the fact that the pustules in the latter disease occur on healthy skin and not on an already inflamed surface. When the eczema of the child had passed into the acute pustular form it is a reasonable theory to suppose that septic absorption supervened from bacterial toxins and that these, acting as a source of irritation on the central nervous system, produced greater acid secretion in the stomach and duodenum. The cutaneous lesion of this nature brings about an alteration in, and destruction of, the blood corpuscles through the superficial inflammation of the skin, followed by necrosis of the superficial layers of the epidermis and the prolonged secretion of serum and pus.

Treatment.—Surgical intervention was in this case beyond consideration after the diagnosis was assured. Had the case not presented such grave features surgical interference would have been worthy of suggestion and adoption in view of the absolutely hopeless prognosis of ulcer of the duodenum after perforation, although it must be conceded that the results of such operations offer nothing to boast of.

Glasgow.

[1] Letulle: Origine infectieuse de certains Ulcères simples de l'Estomac ou du Duodenum, Comptes Rendus, tome cvi., No. 25.

[2] Ebstein: Experimentelle Untersuchungen über das Zustandekommen der Blutextravasate in der Magenschleimhaut, Archiv für Experimentelle Pathologie, Band ii., S. 183.

THREE CASES OF PERFORATED GASTRIC ULCER: RECOVERY AFTER OPERATION.

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CASE 1.—A single woman, aged 34 years, was admitted into the Metropolitan Hospital on Jan. 1st, 1902, at 9 P.M. The patient had been seized with sudden pain in the epigastrium at 9 A.M. on the same day and was much collapsed. She was seen by Mr. Reginald Brown who gave her morphia: she was also seen by a surgeon in the afternoon. Towards evening the pain returned, the abdomen became rigid, and the pulse rate increased. There was a past history of anæmia and indigestion for years but there had never been any hæmatemesis. When seen at the hospital she was not in great distress but was evidently well under the influence of morphia. The abdomen was not moving at all and on the upper and left side where the pain was complained of the muscles were very rigid. Resonance was unaltered all over; the liver dulness was normal. No dulness was present in the flanks.

Operation was performed at 11.30 P.M. on the day of admission. Chloroform was the anæsthetic used. An incision was made in the mid-line above the umbilicus. There was no sign of general peritonitis or free gas on first opening the abdomen but on reflecting the omentum to expose the posterior surface of the stomach there was a small escape of gas. A perforation was found in a small lymph-covered area on the posterior wall, near the cardiac end of the lesser curvature, about two millimetres in diameter. There was very little escape of stomach contents. The perforation was sewn up by invagination with Lembert's sutures. Any lymph and fluid were sponged off the neighbouring peritoneum and no fluid was used in the abdomen. The abdomen was closed and no drain was employed.

The patient made an uninterrupted recovery. She sat up in bed on the second day, was on the couch the middle of the third week, and left the hospital at the end of six weeks in better health than she had been for years. She was seen in September, 1902, and in July, 1903, when she was as well as could be wished. The following was the diet used while in hospital. Rectal feeding was begun on the morning after the operation with three and a half ounces of peptonised milk every four hours and one yelk of egg. Nothing was given by the mouth until the fifth day after the operation when small quantities of water were allowed. On the next day one drachm of whey was given every hour; occasionally the same amount of beef-tea was given instead. This quantity was gradually increased until at the end of three days four drachms were given every hour. Very gradually the amount given by the mouth was increased and the rectal feeding was discontinued. On the nineteenth day after operation baked custard was added to the diet and the enemata were discontinued entirely. On the twenty-third day a small amount of boiled sole was given. On the twenty-sixth day the note reads: "Diet as follows with slight variations daily: Breakfast, 6 A.M., milk, thin bread-and-butter; luncheon, 9 A.M., milk or beef-tea and jelly; dinner, 12 noon, boiled sole, bread-and-butter, custard with milk or water; tea, 3 P.M., milk, bread-and-butter, sponge cake; and supper, 7 P.M., beef-tea or milk and custard or jelly. Total, one pint of milk and half a pint of beef-tea in the 24 hours." On the twenty ninth day two lightly boiled eggs were added and a week later minced chicken was given. On Feb. 14th the patient went home taking ordinary diet except meat.

CASE 2.—The patient, a woman, aged 21 years, was admitted to hospital on Jan. 24th, 1902. She had felt sudden pain in the epigastrium on Jan. 21st; this had been constant ever since but it recurred more violently on the morning of the day of admission. On this day she vomited three times.

The bowels had not acted since Jan. 20th. She had suffered from anæmia and dyspepsia for three or four years but there had been no hæmatemesis. Her condition on admission was as follows. She was fat and anæmic and looked ill. The temperature was 101° F., the pulse was 120, and the respirations were 40 and thoracic only. The abdomen was rigid with no movement; it was moderately distended; great pain and tenderness were present in the left hypochondrium; there was dulness in the left flank. The liver dulness was unaltered.

Operation was performed. The abdomen was opened but contained no free gas. There was no general peritonitis. The area in the lesser curvature of the stomach near the cardiac end posteriorly was covered with lymph. A little gas escaped on disturbing these parts. The perforation could not be found until a linear incision was made through the anterior surface of the stomach, when on inserting the finger an ulcer with a tiny perforation was found high up on the posterior surface of the lesser curvature, near the cardiac end. The perforation was sutured, as was also the incision. The peritoneum was wiped out, no lotion being used. The abdominal wall was closed with a single row of silkworm-gut sutures. Four hours after the operation the patient was propped up with pillows and on the next morning she sat up with a bed-rest, feeling quite comfortable. She vomited once after the anæsthetic. The convalescence of this patient was quite uneventful. The diet was practically similar to that in Case 1. The patient has been seen since and is perfectly well.

Both these cases were under the care of Mr. Brown before coming into the hospital and on admission both were well under the effect of morphia. In neither instance were the abdominal symptoms distressing nor was there much distension. The acute onset, the localised pain, and the tension of the abdominal muscles were the main symptoms on which abdominal section was performed. In Case 2 much time was saved by the incision into the stomach and a thorough knowledge of the ulcer was obtained, whilst the closing of it was facilitated. Valuable information and assistance may be obtained by this method which practically does not add any risk to the operation. More use should, I think, be made of it than has hitherto been the custom. No fluid was used to wash out the abdomen and any fluid that was already there was lightly sponged out with Gamgee sponges, the peritoneum being interfered with as little as possible. The patients were placed in a sitting posture in bed as soon as they had recovered from the anæsthetic. The after-treatment and diet which were carried out by Dr. J. A. Nixon (my late house surgeon) were, I think, the best possible and had largely to do with the success which followed the operations.

CASE 3.—The patient, an anæmic-looking young woman, aged 19 years, was admitted into Charing Cross Hospital on May 1st, 1903, suffering from perforated gastric ulcer. She had been in good health until the past few weeks, during which she had been suffering from anæmia. She had not had any pain after meals except occasional heartburn. About a week before admission she had first experienced subacute pain in the left hypochondriac region; this had no relation to food and did not cause vomiting and was put down to a strain. On April 30th, at 4.30 P.M., about four hours after her midday meal, she was suddenly seized with acute pain in the epigastric and left hypochondriac regions and became collapsed and was helped to bed. When seen by a medical man at 9.30 P.M. she was in great pain. The pulse was 120, the epigastrium was extremely tender, and vomiting was frequent. A small amount of morphia was injected and she had a little sleep, but on waking the pain and vomiting returned. This condition of affairs continued until she was admitted to the hospital at 5 P.M. on May 1st, evidently in great pain. The pulse was 140 and the respirations were 30. On examining the abdomen it was found to be slightly distended and extremely tender.

Operation was performed 27 hours after the first onset. The abdomen was opened by a median epigastric incision. No gas was noticed to escape but some clear blood-stained fluid came out of the peritoneal cavity; this was not offensive and, in fact, was odourless. On lifting up the margin of the liver a quantity of blood-stained turbid fluid came from the space in front of the lesser omentum. A perforation was seen on the stomach near the lesser curvature a little to the left of the pylorus; the perforation was one-third of an inch in diameter and the surrounding tissues were infiltrated and very friable. The perforation was closed and was then sewn twice over with interrupted Lembert sutures. The liver and surrounding structures in the neighbourhood of the lesser omentum were carefully wiped. A gauze drain was passed down to the stomach and the incision was closed with one row of interrupted fishing-gut sutures. The operation was fairly well borne. A saline and beef-tea enema was given before the patient left the operation room.

This patient eventually made a good but somewhat protracted recovery. The after-treatment in this case was much the same as in the former two cases but a certain amount of intestinal irregularity caused at times a quick pulse and a rise of temperature which it was feared might mean the starting of a subphrenic abscess. This, however, all cleared up and the patient went to the convalescent home two months after her operation.

Harley-street, W.

A NEW ETHYL CHLORIDE APPARATUS AND METHOD.

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LATE ANÆSTHETIST TO THE TOTTENHAM HOSPITAL, ETC.

SINCE chloride of ethyl has of late been receiving so much attention as a general anæsthetic there has resulted a variety of special inhalers for its administration, each of which claims certain advantages. I venture to think that the most convenient as well as the most simple in use is that so easily made by attaching together the facepiece and angle-mount of an ordinary Clover's portable ether inhaler and introducing the chloride of ethyl through an orifice at the end of the angle-mount. If it is desired to give this agent as a preliminary to ether instead of nitrous oxide the ether chamber is, of course, retained in its place.

In THE LANCET of July 18th, 1903, p. 168, Dr. T. D. Luke has explained and illustrated his inhaler which is of the above-mentioned pattern except that the ordinary tap for nitrous oxide has been removed and the hole in the angle-mount is closed with a boxwood plug. In most of the other inhalers I have seen and used the estimated dose of ethyl chloride has first to be projected on to a more or less extensive surface of lint, cotton-wool, or sponge which is situated close to the patient's nose and mouth and then the mask is rapidly applied. In others a capsule is broken—containing either three or five cubic centimetres of ethyl chloride—inside the inhaler.

The objections to the former class of inhalers are that a certain amount of the fluid rapidly evaporates and is lost for anæsthetic purposes, and consequently an unknown quantity of the agent is given. Also, freezing takes place inside the mask and often close to the patient's nose and mouth. The objection to the capsules is that there is too much restriction of dose. In the case of children one and a half to two and a half cubic centimetres are often enough, and in adults five cubic centimetres are often more than are necessary for one inhalation. Again, for prolonged administration a much larger amount than five cubic centimetres may be required and it would be inconvenient and wasteful to be frequently breaking capsules. The disadvantage to both methods is that the patient is subjected to a concentrated vapour of the full dose immediately the mask is applied to the face. This is to many patients alarming, especially to children and nervous subjects, and not infrequently causes hampered breathing, coughing, choking, struggling, and consequent delay in the induction of anæsthesia.

Having used this "Clover" method a number of times I find the following modifications of great advantage and venture to submit them to the consideration of administrators. Instead of the hole and boxwood plug in the angle-mount I retain the ordinary tap with metal tube continuation, commonly found on the Clover's angle-mount and used for gas in the nitrous oxide-ether sequence. The tap is easier to manipulate than the plug and cannot get lost. Also, owing to the construction of some of the trigger-valved ends of the ethyl chloride bottles it is easier to get in the fluid through the projecting end of the tap than through a hole flush with the surface of the angle mount, especially if the patient is inclined to move. At the

commencement of the inhalation, instead of projecting the ethyl chloride through the tap directly from the bottle, I first measure out a definite quantity into a small tube made of thick glass, which for the sake of accuracy I have marked in three, four, and five cubic centimetre graduations. To this small measure-glass is attached a short piece of red rubber tubing, by means of which it is attached to the end of the tap of the angle-mount (vide illustration).

In the case of a patient sitting up in the dentist's chair the position of the tube in relation to the facepiece is as shown in the illustration and the tap may with advantage be closed. The tube being downwards, no ethyl chloride will escape and no smell will be noticed if the tap is closed. The mask having been accurately adjusted to the patient's face a short period of to-and-fro breathing is first permitted, the tap is then opened, and the angle-mount, with its tube, is rotated from the vertical position—with the administrator's right hand—until it is almost horizontal. The rotation is now conducted gradually so that the fluid will run very slowly out of the glass phial through the tap and metal tube into the bag. If this is done at first slowly the patient will soon get accustomed to the dilute vapour and most of the fluid, at least at first, will evaporate on its way through the tap and metal tube, very little entering the bag in a liquid state. If there is a tendency to holding the breath or to coughing the angle-mount can be rotated back again, thus limiting further evaporation of the ethyl chloride until the symptoms subside; it can then be rotated upwards again and the flow continued until the tube is empty. With a little care and practice there will only on rare occasions be any trouble during induction.

In the case of a patient in the recumbent position it is sometimes better to have the charged tube apart but close at hand. The facepiece having been adjusted the tap is then opened and the tube fixed on, and all that then will be necessary is to tip up the tube very slowly, which is easily done on account of its rubber attachment to the tap. Should more ethyl chloride be required—and this is most likely to occur in the case of full-blooded muscular men and alcoholics—the tube can be removed and recharged with a definite dose, or more may be projected directly from the bottle through the tap. If desired, the bag can be first filled with nitrous oxide and the patient permitted to inhale it until commencing unconsciousness, then the rubber gas tube can be detached and replaced by the charged phial—which should be in this case rather more quickly emptied—and full anæsthesia rapidly follows. By replacing the ether chamber this method can be used to give ethyl chloride as a preliminary to ether just as well as the nitrous oxide-ether sequence, the only thing necessary being the little glass phial with its rubber tube. The idea of the glass tube I have from Dr. F. W. Hewitt who uses it with his special gas apparatus to give nitrous oxide and ethyl chloride mixed. The metal tap and tube of the angle-mount can with advantage be made larger than is generally found and that of mine (supplied to me by Mr J. H. Montague of New Bond-street, London, who also makes the glass tubes) is very much larger.

The following is a summary of the advantages of this inhaler and method of administration: 1. A measured quantity of the anæsthetic fluid is given, varying according to the age of the patient and taking into consideration the time of anæsthesia required, the nature of the operation, &c. This gives accuracy of dosage and is useful for making observations and notes for future reference. It should also help to insure against an overdose. 2. The ethyl chloride can be given *gradually* and that *after* the facepiece is adjusted; this prevents coughing, holding the breath, &c., and produces a satisfactory induction. The tube need not be emptied if satisfactory anæsthesia is likely to be produced by less than its contents. 3. More can at any time be added if necessary, either by projecting the fluid through the large open tap or by measuring off more in the tube; also, either can be done without having to remove the facepiece which is an advantage in some cases. 4. Movements on the part of the patient before anæsthesia is complete are of little consequence as the charged tube can first be fitted on, which it is desirable to do in the case of children and nervous patients who are likely to struggle or to resist. 5. In the case of struggling it may be better to empty the tube more quickly, and then both hands of the administrator are available to hold the mask and to steady the patient. 6. If the tap is turned off before the tube is fixed on the patient will not experience the slightest smell of the narcotic when the mask is applied. This is of importance in nervous patients. 7. A perfectly free air-way, no lint, sponge, or wool to breathe through, and no freezing vapour near the patient's mouth or nose, as all evaporation takes place in the metal tube and rubber bag. 8. Nitrous oxide can be given as a preliminary, and by retaining the ether chamber ethyl chloride can be given before the ether, all that is necessary being the glass tube. 9. Bromide of ethyl could be given with advantage by this apparatus, as it is important to be able to measure carefully the quantity of the drug. It would be as well to have a larger graduated phial in this case. 10. Economy in the amount of the anæsthetic used.

I have given ethyl chloride by this method and apparatus using the paper bag—as invented by Mr. Rickard W. Lloyd and made by Messrs. Barth and Co.—with satisfactory results and recommend its use instead of the rubber one in the case of patients suffering from tuberculosis. In conclusion, I would state that up to the time of writing I have given ethyl chloride over 150 times by this method and in not a few cases somnoform; also a number of times in conjunction with ether.

Edinburgh.

TWO CASES OF CÆSAREAN SECTION.

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IN the course of last year I had two cases of Cæsarean section for obstruction due to fibroid tumours. These cases did well both as regards mother and child and an account of them was published in THE LANCET.[1] Since then I have had two cases of Cæsarean section for pelvic contraction, which are typical of the two classes in which Cæsarean section is performed for this cause.

The first case is an example of the group in which the fact that the pelvis is contracted and the degree of the deformity have been ascertained some long time before labour is expected, and where a date, generally about a week before full term, has been fixed for the performance of the operation. In such cases every opportunity is afforded for operating in the most favourable circumstances; the patient is thoroughly prepared beforehand as in other cases of abdominal section and the preparations for the operation itself can be made as carefully as in ordinary cases of ovariotomy. The patient has to stand the effects of the operation but she has not been worn out beforehand by prolonged labour nor has she been subjected to the risk of infection by vaginal examinations, with, perhaps, fruitless attempts at artificial delivery through the natural passages. Provided the operator is accustomed to abdominal work and familiar with the special points that require attention in this particular operation, especially as regards the proper method of suturing the uterine wound, Cæsarean section in the circumstances under consideration is an operation of little risk at the present time. Formerly it was thought to be disadvantageous to operate before labour pains had started, either spontaneously or after the induction of labour, for it

[1] THE LANCET, Jan. 17th, 1903, p. 157.

was believed that if labour had not started the uterus would not contract well after Cæsarean section. This objection has now proved to be merely theoretical and, in fact, in cases of Cæsarean section performed before the onset of labour the uterus does contract as well as after a normal delivery.

In the second case we have an example of the class in which nothing has been known of the existence of pelvic contraction till labour has been some considerable time in progress and where unavailing efforts to effect delivery with the forceps have been resorted to. Such a combination of circumstances is generally considered to add greatly to the danger of Cæsarean section. While I am far from disagreeing with that view of the matter I think that the danger may be easily exaggerated. Much must necessarily depend on the exact circumstances of the particular case. The time that the second stage of labour has lasted, the state of the patient at the moment, and the probability or otherwise that the preceding vaginal examinations or manipulations have been made by someone who may be trusted to have scrupulously observed the principles of asepsis are the chief factors to be taken into account. The suitability of the surroundings for the performance of an abdominal section under aseptic conditions is also, of course, a matter of the first importance. Again, the vitality of the child as evidenced by the state of the fœtal heart sounds must be ascertained as well as possible. If the heart sounds have their normal frequency the chances are that the child's vitality is so far unimpaired; on the other hand, if the heart sounds are much slower than normal the child is probably already in a critical condition as a result either simply of the prolonged labour or of the damage it has undergone from attempts to deliver with the forceps. In this case the patient, who had had one previous confinement, had been some 28 hours in labour and two attempts to deliver with the axis-traction forceps had been made before she came under my observation. The fœtal heart sounds were easily heard and had about their normal frequency. Yet although the child's heart was still beating after delivery all attempts at resuscitation unfortunately failed. This is, I think, to be ascribed in all probability to the previous attempts at forceps delivery. Obviously, then, it is most desirable to miss no opportunity of recognising contraction of the pelvis early in pregnancy, for in that way if delivery has to be effected by Cæsarean section the risk to both mother and child is very much reduced.

CASE 1.—The patient, aged 29 years, was admitted into the London Hospital on March 6th, 1903, for the purpose of having Cæsarean section performed. She had been married four years and had had two confinements. In the first labour, which took place on April 23rd, 1900, she was delivered of a full-term stillborn boy. The presentation was a footling and the child was said to have been "suffocated." No instruments were used. The puerperium was normal. In her second labour on July 20th, 1901, she was delivered with forceps of a stillborn boy who was the first of twins. On the 22nd she was brought up to the London Hospital in labour with the second child. Delivery was effected by cephalotripsy at 7 A.M. on the same day. Her temperature on admission was 100° F.; at noon she had a rigor and the temperature rose to 106°. On the 25th she had another rigor with a temperature of 106 5°, the pulse-rate being 128. On August 2nd there was pain in the right hypochondriac region and there were physical signs of pleurisy. Up to the 6th there was marked pyrexia with nocturnal elevations. On that day she had another rigor, the temperature reaching 106°. On the 10th a sausage-shaped swelling was felt on the right side of the vagina close to the vulva. This proved to be an abscess and it was opened on the 12th. On the 14th a superficial abscess on the buttock was opened; it communicated with that in the vagina. A large quantity of fœtid pus was evacuated. On the 21st a firm swelling occupying the right iliac region was noted. The uterus was almost fixed. The temperature at this period varied from 99° to 101°. The cellulitic swelling in the right iliac region did not suppurate. It gradually disappeared, the temperature came down, and the patient went to a convalescent home on Sept. 14th. She came to the London Hospital in November, 1902, and was then found to be about six months pregnant. She was told that she could either have labour induced at the seventh or the eighth month or that she could go to her full time and have the child so delivered that there would be little or no probability of a future pregnancy. She chose the latter alternative and was admitted on March 6th, 1903, under the care of Dr. G. E. Herman. Shortly afterwards, owing to Dr. Herman's absence from the hospital, the patient came under my care. A consideration of the dates led me to believe that March 19th was the date on which labour might be expected and accordingly I decided to perform Cæsarean section a week beforehand—namely, on the 12th. The measurements I took of the pelvis were as follows: between the anterior superior iliac spines, 9 inches; maximum distance between the crests, 10 inches; the external conjugate, 7¼ inches; and the diagonal conjugate about 4 inches. The pelvis therefore showed slight general contraction. The conjugate of the brim was taken to be rather less than three and a half inches. I performed Cæsarean section on the afternoon of March 12th, Mr. R. Norman, the senior resident accoucheur, assisting me. The child, a girl, was extracted alive and soon cried vigorously. The uterine wound was sutured with deep and superficial sutures of silkworm gut. The deep sutures were of course passed through the peritoneum and muscle only. The left Fallopian tube was found to be occluded but not dilated and it was not interfered with. A portion of the right Fallopian tube was pinched up, tied, and the distal portion removed about one-eighth of an inch beyond the ligature. The patient stood the operation well. The temperature at 8 P.M. was 100·2° and the pulse was 114. After 24 hours the temperature was normal and the pulse was 80. The patient made a good recovery; the temperature remained normal, except on one afternoon when there was a service in the ward. It fell on the next morning and did not rise again. All the abdominal sutures were out by the tenth day. The patient got up at the end of the third week and left the hospital shortly afterwards with her child, both perfectly well.

CASE 2.—The patient, an alien immigrant who spoke no English, was admitted from the outdoor maternity department into the London Hospital under my care on July 19th, 1903, at 12.30 A.M. She had been in labour since the 17th at 10 P.M. It was difficult to get much information as to her previous history. She was believed to have had one child previously in Russia. It was said to have been small and to have been delivered with forceps after a very difficult labour. On the present occasion two attempts had been made to effect delivery with the axis-traction forceps before I saw the case. The head, which lay in the second vertex position, could not be made to enter the brim. When I saw her at about 1 A.M. she was having strong pains almost every minute, the vulva was very œdematous, the os was fully dilated, and the head was in the position just mentioned. I measured the pelvis carefully and found that the distance between the anterior superior spines was 8 inches, the maximum distance between the crests was 9¼ inches, the external conjugate was 6⅞ inches, and the diagonal conjugate was 3⅞ inches. The true conjugate was judged to be about 3¼ inches. The fœtal heart sounds were easily heard and they seemed to be normal. The alternative methods of delivery that were considered were craniotomy, symphysiotomy, and Cæsarean section. As the child was alive and the mother's condition was fairly good I excluded the first. The choice between symphysiotomy and Cæsarean section was difficult. The œdematous condition of the external genitals influenced me to some extent against symphysiotomy and I decided upon Cæsarean section. The patient was in a very dirty condition on admission. The skin of the abdomen was first thoroughly washed with soap and water and afterwards was rubbed with a solution of biniodide of mercury in spirit; the part of the skin in relation with the operation was also thoroughly rubbed with ether. I then performed Cæsarean section assisted by Mr. A. L. Matthews, resident accoucheur. As compared with the operation when undertaken before the rupture of the membranes, it was noteworthy in the present instance how closely the wall of the uterus was applied to the child's body. On that account more care than usual was necessary in cutting through the uterus to avoid injuring the child. The placenta was attached under the upper half of the uterine incision. The child was extracted rapidly without difficulty but although the heart could be seen to be beating all efforts at establishing respiration were unsuccessful. The uterine wound was sutured with silkworm gut, an attempt was made to sterilise the patient as in the preceding case, and the abdominal wound was closed completely. In this case there was a good deal of distension for the first few days after the operation till the bowels were well opened; after that it disappeared. The patient made a good recovery and left the hospital on August 10th.

Harley-street, W.

ON THE ETIOLOGY OF BUBONIC PLAGUE:

AN EPIDEMIOLOGICAL CONTRIBUTION.

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OBSERVATION of two epidemics of plague which have occurred at Sydney among whites and in circumstances of population, laws, customs, housing, and food which closely correspond with European conditions has led me, as well as all the members of the public health staff over which I have the honour to preside, to entertain opinions concerning the diffusion of plague which differ fundamentally from those commonly advocated. What the latter are can be most concisely shown by a quotation from the latest work which deals with this subject. I refer to "A Manual of Plague," by Major W. E. Jennings, I.M.S., and I choose it for the purpose not merely because it has been published during the present year but also because it is most carefully written and reflects with great accuracy the views as to the causation of epidemic plague which are all but universally held at this date. The quotation runs as follows: "Our measures for the prevention of plague should be mainly directed against what the strongest evidence points to as the most important etiological factors. The disease is mainly spread by human beings, infected clothing or effects, and ship-borne rats" (chapter x., p. 200), and that the teaching thus indicated is not confined to the English school is testified sufficiently for the present purpose by reference to the extraordinary pains taken to isolate every person who had in any way come into communication with the subject of that case of laboratory plague which recently occurred at Berlin.

The teaching drawn from the first of the epidemics at Sydney directly opposed those views; it was that neither direct nor indirect communication with the sick had borne any share at all in diffusion of the disease, that place-infection almost certainly had not operated to maintain it, and that the sole source of infection for man had lain in rats affected with it. The evidence on which these opinions rested was given in my official report[1] which probably has fallen under the notice of most of those who are specially interested in this subject; however, its contents were also summarised in an article which appeared elsewhere.[2] Its importance lay wholly in positive exclusion of human intercourse and of place-infection as factors in the epidemic prevalence, a point which one author alone has perceived.[3] It lay not at all in the assertion that the sole source of the infection consisted in diseased rats which, though clearly seen by us to be justified, was but imperfectly supported by examples.

Our observations of 1900 have been repeated at two places and, as far as the reports permit judgment, with similar results—namely, at Brisbane Queensland, by Dr. G. B. Halford[4] during epidemics which occurred in 1901 and 1902, at the same city by Dr. B. Burnett Ham[5] during a further epidemic which occurred in 1903, and at Port Elizabeth, Cape Colony, by Dr. G. J. Blackmore[6] during the earlier part of an epidemic in 1901. All of these writers seem to have been able to exclude the influence of human intercourse and place infection.

A second epidemic began about 15 months after the first had ceased. It afforded the desired opportunity of repeating, checking, and extending the observations recorded in 1900. A result was that the latter were in every respect corroborated. My account of this second epidemic, together with many interesting and important observations by Dr. Frank Tidswell who directs the laboratories of the board, has also been published and is now available to epidemiologists.[7] I do not propose on this occasion, therefore, to offer any summary of its contents; suffice it to say that the opinions thus far referred to have been carried into practice. I do not isolate the sick but allocate wards to them which form part of the infectious diseases division of a general hospital; there they are treated under the same conditions as are cases of measles or chicken-pox in other and adjacent wards in the same inclosure; the only extra precaution which has been taken is that of rendering all the wards rat-proof. Neither do I segregate those who have been in contact with cases of plague (though to this contact with cases of primary plague pneumonia would form an exception), in accordance with an opinion which I have elsewhere expressed—namely, that "contacts" are not such persons, but those who have been closely associated with plague rats.[8] Hence disinfection of clothing, &c., is rapidly done; only the cleansing of houses from rats and the rendering of them less liable to infestation in future are subjects of careful attention. These modifications of the method of managing epidemic plague which elsewhere is still thought necessary have been attended with a great saving of time, anxiety, perturbation of the public mind, and of money, and if the result may be referred to as evidential in relation to the soundness of our conclusions, it can be said to have confirmed in practice the teaching we drew from the epidemiological facts observed in 1900

Another consequence of these improved conditions was that the business of managing the second epidemic proceeded quietly and steadily, without excitement on the one hand and without opposition to necessary measures on the other. Hence, it became possible to direct attention mainly to examining much more closely than before into the nature of the relationship which existed between cases of plague and plague rats—a matter which, with us, had come to take that position of prime importance which before had been occupied by the questions whether human intercourse and place infection were in reality among the causes of epidemic bubonic plague. Connexion between the neighbourhood of plague rats and cases of plague was discovered very much more completely than in 1900 and especially precedence of the disease among rats over its occurrence in man was shown by the events noted in many separate localities to have been practically constant. Starting then, from these two latter observations which, for us, have all the weight of facts, I proceeded to inquire by epidemiological methods how communication of the infection from the rat could be commonly effected under the conditions of daily life.

In the rat plague is a septicæmia; certainly some special means are necessary to transmission of the infection from it to man. Now, we know that plague rats can deposit the virus on external objects with the nasal secretion and with the excreta; it is possible, therefore, that it might reach man in one of two ways—(1) by contamination of his food and (2) by casual contact with his skin. The former of these must be summarily dismissed from consideration, for there is practically no pathological evidence that man is infected by feeding. If it be possible, as analogy from experiments made with the lower animals suggests, at all events it has happened so rarely that this mode can have no significance in relation to epidemics. But the pathological evidence that the infection is commonly received by inoculation in the skin is direct, uniform, and clear; all but a small minority of cases in every considerable epidemic are of the bubonic form and all such cases are so caused. Consequently that inoculation is the result of casual contact with deposited virus is at this date very generally held to be the most important cause of epidemics, although (altogether contrary to my experience) deposition is usually ascribed to man, and but rarely, or in quite a minor degree, and always with hesitation, to plague rats. This mode of infection—inoculation in the skin by casual contact with deposited infection—is a possibility which, it may be admitted, has occasionally come into play; but what evidence is there that it is a factor of any practical importance in production of epidemic prevalences of plague? This is the question which I propose to refer to a test of practical experience.

The proof that the infection of plague is communicated to man by inoculation through the skin in the vast majority of

[1] Report on an Outbreak of Plague at Sydney, 1900, by J. Ashburton Thompson (W. A. Gullick, Government printer, Sydney, 1900).

[2] Journal of Hygiene, vol. i.

[3] Kolle: Zeitschrift für Hygiene, 1901, p. 397.

[4] Report on 117 Cases of Plague occurring at Brisbane in Sporadic Form (Briggs and Morcom, Brisbane, 1902).

[5] Report on an Outbreak of Plague in the State of Queensland (G. A. Vaughan, Government printer, Brisbane, 1903).

[6] THE LANCET, Oct. 11th, 1902, p. 984.

[7] Report of the Board of Health on a Second Outbreak of Plague at Sydney, 1902, by J. Ashburton Thompson (W. A. Gullick, Government printer, Sydney, 1903).

[8] Report, Sydney, 1900, p. 42.

cases has been well stated in the report of the Indian Plague Commission.[9] It is, "that primary buboes practically always develop in connexion with lymphatics which originate in the skin." The constant preponderance of "inguinal" or "groin" buboes over others was also shown in the same paper to stand in relation to the larger area of skin which drains through the lymphatic glands of the groin. Analysis of returns which represented 5442 cases of bubonic plague showed that the ratio in which buboes occurred in the lymphatic glands of the head and neck, the axilla, and the groin respectively was nearly the same as the ratio which the skin areas draining through the lymphatics of those regions bear to each other.

The proportion in which buboes are met with in the groin always preponderates over that in which the buboes occur in other regions of the body; this was very early observed among Eastern races who habitually go barefoot. Before long, however, the same preponderance was noticed among Europeans (though in small number) who did not go barefoot, but the hint thus given seems to have been overlooked and (perhaps in consequence) assumed infectiveness of ground surfaces became a prominent feature in writings on the etiology of plague. But at Sydney in 1900 I was able to show that in no less than 73 per cent. of the 283 cases which exhibited buboes the latter were found in the groin although all the patients referred to were white, clothed in European fashion, and invariably shod.[10] The validity of the banal explanation of the preponderance of buboes in the groin thus seemed to be rendered more than doubtful. But I had pointed out in the same report that the infection of plague was received by man, for the most part, within buildings, which seems also to have been noticed in India.[11] Now, if the infection be usually received by man in houses, &c., the objection raised above to the banal explanation of the preponderance of groin buboes must be revised, for there is a time of day when nearly all people, whites as well as others, go barefoot—namely, when they are going to bed or rising from it. At that time, therefore, infectious material deposited on floors, carpets, &c., by rats (or otherwise) would be more likely to come in contact with the unprotected skin of the feet than with that of any other part of the body. So that, although conjunction between a recent breach of the epithelium and deposited infection in the requisite state of activity cannot often happen, here is the opportunity for it at all events, and plague was not so frequently contracted by our people in either epidemic but that possibly those persons who exhibited groin buboes might have received the infection in that way. Let us try, then, to ascertain what the fact was. Does the record contain any cases in which infection resulting in groin buboes was probably not contracted by casual contact with deposited virus of the unprotected skin of the lower extremities? If it turn out that it does the hypothesis under examination will be very greatly weakened; it must, indeed, be discarded as an explanation of epidemic bubonic plague.

Among the 139 cases which constituted the epidemic there were 106 in which buboes occurred in the groin. But it is necessary to speak more exactly. Our present concern must be with primary buboes, since these alone indicate the region of skin through which the virus entered; and in order to leave no room for possible confusion between primary buboes and secondary glandular swellings it is desirable to take into account only those cases in which the groin bubo was solitary. Then the expression "groin bubo" is loose. A bubo in one of the oblique set of inguinal glands indicates infection through the skin of the lower part of the trunk. Buboes in one of the vertical set of femoral glands alone indicate infection through the skin of the feet or of other part of the lower extremity. An examination intended to discover whether there were buboes betokening infection through the skin of the lower extremity must be limited, therefore, to cases which exhibited *solitary* buboes in one or other gland of the *femoral* chain. The total number of such cases was 60, but the majority are not available for the present purpose. Thus the place at which the infection was taken could not be determined in 16 of them; either the inquiries made failed to reveal any clue to it or else the evidence for infection at home and at work seemed equally cogent. These 16 must be thrown out, therefore, for they (or some of them) may have been infected at their place of residence, where they were admittedly exposed to the risk ascribed to bare feet which is now under investigation. In 25 other cases it was considered that the patient did receive the infection at his place of residence, so that these too must be thrown out for the reason just given. In three others the place of employment probably was the place of infection but the details left room for some slight doubt; these are excluded by way of precaution. Three more were Chinese, concerning whom either information of the required kind could not be got at all or it was untrustworthy. Lastly, one was a woman whose movements could not be traced. So that 48 of the 60 have to be discarded. There remain 12 patients who had solitary femoral buboes and who are confidently adjudged to have received the infection away from home and therefore while fully clothed. Of these patients eight inhabited houses in neighbourhoods which were distant or even remote from the infected area and which were at all times free from suspicion of infection with plague (yielded neither indigenous cases nor plague rats); and while, on the one hand, 11 of the residences bore no traces whatever of infestation with rats (the twelfth alone having exhibited some slight signs), on the other hand, the places at which the patients were employed were badly infested and had yielded dead rats in number in ten instances at least. It is certain that these persons all fell into danger at their place of employment and apparent that they were not infected at home. At their employment they were fully clothed; their lower extremities were protected by boots, socks, and trousers, or (in one case) by stockings and petticoats, while their hands, arms, necks, faces, and in some cases, no doubt, their chests too were uncovered, exposed, and in no way protected from casual contact with deposited infection and therefore they should, *ex hypothesi*, have exhibited cervical or axillary buboes. In fact, however, they none of them did so. They were all of them inoculated in one or other lower extremity—in that very area of skin which beyond all doubt was well protected from casual contact with deposited infection. These 12 cases form but a small proportion of the 139 of which the second epidemic consisted, but the necessary rules under which they were selected, in circumstances where great caution was indispensable, led to rejection of several others which, were they to be cited as examples of a fact otherwise ascertained, might have been included. These 12 persons then were not infected by feeding for the reason drawn from the pathology of plague which has already been mentioned; it has just been shown that they could not have been inoculated in the lower extremity by casual contact with deposited infection and none of them had had any communication with preceding cases of plague. How, then, did they come to contract the disease? There is, in my opinion but one plausible—nay, but one possible—explanation. Inoculation in that situation and in those circumstances can have been brought about only by a suctorial parasite. On the whole the parasite which is best fitted to fulfil all the requirements of the case is the flea.

Several *a priori* objections have been raised during two or three years past to Simond's hypothesis of the flea[12] which, I may be permitted to add, I had myself accepted as a working hypothesis before I had had any practical experience with epidemic plague on the ground that it reconciled a much greater number of discrepant and even contradictory observations which had then been recorded than any other suggestion which had been made.[13] I conclude, therefore, by mentioning first that the indirect objections raised by Nuttall[14] on grounds furnished (*a*) by his unsuccessful experiments on the transmission of plague from animal to animal by means of bed bugs and (*b*) on the rapidity with which the bacilli of several diseases, among which plague was not included, lost their virulence after entering the stomach of the flea, have recently been met. Successful experiments on the transmission of plague from animal to animal by means of fleas have now been reported by Raymond and Gauthier working at Marseilles[15] and by Elkington working at Bombay,[16] both, be it remembered, thus confirming experimental results originally reported by Simond himself.[17] Secondly, that the objection raised by

[9] Indian Plague Commission, paragraph 175.
[10] Report, Sydney, 1900, p. 40.
[11] Indian Plague Commission, paragraphs 221 and 298.
[12] Annales de l'Institut Pasteur, tome xii., p. 625.
[13] Report, Sydney, 1900, p. 40.
[14] Johns Hopkins Hospital Reports, vol. viii., pp. 17–21.
[15] Abstract in Comptes Rendus de la Société de Biologie, December, 1902, tome liv., p. 1497. The paper is printed at length in La Revue d'Hygiène, May, 1903, p. 426.
[16] Australasian Medical Gazette, August, 1903, p. 341.
[17] Loc. cit. sup., p. 673.

Galli-Valerio,[18] with him Nuttall,[19] on insufficient grounds—namely, that "rat fleas" do not bite man—has also been met by direct experiments recorded by the observers just mentioned, as well as by Tidswell at Sydney. The species pulex fasciatus (Baker) and pulex pallidus will freely bite man and can even live on his blood alone for several weeks. I take this opportunity of pointing out that Tidswell[20] first observed pulex pallidus to be a species which most commonly infests the rats of the Australian coast line, an observation which was found to hold good with rats in India after he had communicated it to correspondents at Bombay.

The question which was asked above concerning inoculation by casual contact with deposited infection must now be put with reference to transmission of the infection by the flea. The former was there admitted to be a possibility which sometimes, in all likelihood, had been realised; but the chances against conjunction of the necessary circumstances are so many that it cannot be regarded as the cause of epidemics. The latter, also, appears to be a possibility; but does it take practical effect often enough to constitute that cause of epidemics which otherwise is still unrevealed? The answer cannot be drawn from laboratory experiments; it can be furnished only by epidemiological investigation and the evidence must always remain indirect. Much to the purpose has been recorded in my report on the epidemic of 1902.[21] We are of opinion that the hypothesis of the flea fully explains its observed course but the evidence is too lengthy for inclusion in the present communication.

Sydney.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum propriis collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

FIVE CONSECUTIVE CASES OF INTESTINAL OBSTRUCTION SUCCESSFULLY TREATED BY OPERATION.

(Under the care of Mr. G. P. NEWBOLT.)

CASE 1. *Intestinal obstruction produced by a large gall-stone.*—A married woman, aged 54 years, was admitted to the Royal Southern Hospital, Liverpool, on August 4th, 1902, suffering from intestinal obstruction. She was a big, stout woman, weighing 18 stones and measuring 44 inches round the waist and was the mother of nine children, the youngest being aged 12 years. Her bowels were moved naturally eight days before admission and again two days later after an aperient. No flatus had passed for six days but an injection had brought away fæcal matter. She had been vomiting brown, foul-smelling fluid for a week past, her tongue was dry, her pulse was 92, and her respirations were 28. The onset of the attack was sudden and the pain spread all over the abdomen. She had had similar, only slighter, attacks previously but had never been jaundiced and had never had pain in the region of the gall-bladder. Examination per rectum revealed nothing. The abdomen was somewhat distended but there was very little tenderness and the walls moved freely with respiration. When seen at 10 30 A.M. shortly after admission there was no vomit for examination and it was decided to wait for a while in order to get a specimen of the vomit before opening the abdomen. This was done as although there was some distension yet the woman did not seem to be in the distress which is usual when intestine is nipped or tied down. Her obesity did not invite laparotomy unless absolutely necessary. The trouble had lasted a week and she admitted having had similar attacks which she had got over. However, some hours later she had an attack of fæcal vomiting and there was no object in further delay. At 8 30 P.M., the patient being under chloroform, Mr. G. P. Newbolt opened the abdomen in the middle line with a four-inch incision, its centre being at the umbilicus. Some coils of distended small intestine escaped and on passing the hand into the abdomen a hard lump was at once felt in the intestine occupying the left iliac fossa. On drawing it up to the surface a large gall-stone was found to be blocking the gut. All the intestines were now returned except the portion containing the stone, and the abdomen having been shut off with sponges the intestine was tightly held on each side of the stone whilst the latter was removed through a longitudinal incision in the gut. The stone was squeezed out and the incision was closed by two layers of interrupted suture, one taking the edges of the wound and the other (a Lembert suture) prolonged well over each end of the incision. The abdomen was closed with through-and-through silkworm-gut sutures and the patient left the table with a pulse of 108 which soon fell to 92. She was kept under opium. Flatus was passed on the second day and she made a perfect recovery, leaving the hospital five weeks after the operation. The stone was egg-shaped, one end being fractured, and this lay uppermost or nearest the duodenum. It measured two inches in length, one and a half inches in diameter, and three and a half inches in circumference; it weighed 303 grains when dry. Around the broken end was a ring of dark pigment which looked as if this portion of the stone had been gripped by encircling mucous membrane and stained. The fracture was apparently a recent one. Mr. Newbolt saw the patient on June 5th last and she was perfectly well.

CASE 2. *Intestinal obstruction produced by a band.*—The patient, a single woman, aged 31 years, was first seen by Mr. Newbolt in consultation with Dr. W. Murray Cairns on July 16th, 1902. Her previous history was good: she had never had any digestive trouble but had had scarlet fever six months before and on examination a mitral murmur was present. On July 14th, two days before Mr. Newbolt saw her, she ate an ordinary midday meal of beef, &c., and one and a half hours later she was seized with acute pain in the umbilical region which doubled her up on account of its severity and made her vomit. Her bowels acted twice after the pain began, the second motion being attended with a good deal of griping. She was not collapsed; her pulse was 60, her temperature was normal, and her illness simulated an attack of colic. Mustard poultices were applied to the abdomen. On the next day she was no better; there were constant pain, vomiting, and no passage of flatus. Dr. Barr saw her at this stage of her illness and diagnosed obstruction by band. On July 16th, when Mr. Newbolt was called in with a view of operative proceedings, the patient was still vomiting, no flatus had been passed, and slight distension of the abdomen appeared; the vomit was becoming feculent and the pain was constant. On examination her pulse was 70 and her temperature was normal; her face was of a good colour; the urine was scanty; the abdomen was not moving with respiration and was tender all over with a marked tympanitic area. Mr. Newbolt had her removed in an ambulance to the Royal Southern Hospital. Here he opened the abdomen in the middle line by an incision four inches long with the umbilicus at its centre. Distended small intestine at once presented and was allowed to escape. Contracted gut appeared in the left iliac region and tracing it back Mr. Newbolt came upon the seat of the obstruction which was low down in the ileum. A thin white fibrous band exactly like a vocal cord was attached at one end to the mesentery; it encircled the gut and was again attached to the mesentery on the opposite side. It was a separate structure and not a thickening of the peritoneal coat; there was no trace of old peritonitis and the band looked as if it might be of congenital origin. It was cut away close to its origin and insertion. The abdominal wall was closed in layers and the patient was given a saline injection per rectum. Flatus was passed on the third day and the patient made a good recovery. During convalescence she had an acute urticarial rash all over the body followed by some bronchitis. She went home five weeks after the operation. Her further history, for which Mr. Newbolt is indebted to her brother-in-law, is interesting. In September, 1902, she went to Palestine and did well till early in November when whilst at a hotel in Damascus a recurrence of the symptoms of obstruction suddenly supervened. She was taken to the Scotch Mission Hopital in

[18] Centralblatt für Bakteriologie, Band xxvii., p. 1., Band xxviii., p. 842; Journal of Tropical Medicine, vol. v., p. 55.
[19] Op. cit., p. 65.
[20] Report, Sydney, 1903, p. 72.
[21] Op. cit., Paragraphs 295–300.

that town and was there operated upon by the surgeon in charge. A firm fibrous band was again found in the lower portion of the ileum and was divided with complete relief to the symptoms. She again made a good recovery.

CASE 3. *Intestinal obstruction produced by an omental band in a patient twice operated upon for strangulated umbilical hernia.*—A married woman, aged 60 years, was admitted to the Royal Southern Hospital on July 8th, 1902, suffering from symptoms of intestinal obstruction. 12 years previously she had been operated upon for strangulated umbilical hernia by a Liverpool surgeon and on Sept. 4th, 1901 (ten months before), Mr. Newbolt had operated upon her for a recurrence of this condition. She then had a huge umbilical hernia which took one and a half hours to unravel, but though at her first operation she was told that she would never survive a second, yet she made an unimpeded recovery. When called to see her by Mr. M. J. Campbell on the occasion of her third attack she told Mr. Newbolt that 48 hours previously after lifting a heavy weight she had been seized with sudden pain in the left iliac region, that vomiting at once set in, and that she had passed no flatus since. On examination she did not look very ill, her pulse was 80, and her temperature was normal. No vomiting had taken place. Knowing, however, her previous history Mr. Newbolt persuaded her to go into hospital as soon as possible. It might be stated that she was under the influence of opium. An enema brought away some scybala and it was thought that some flatus was passed; the ward sister, a woman of much experience, was so certain of this that Mr. Newbolt decided to wait for further symptoms. She vomited some bile-stained fluid once in the afternoon and once the night that she was admitted, and as the effect of the opium passed off she complained of pain at the umbilicus. Very little urine was passed and the treatment practically was starvation. On the next day (the 9th) there were no change in her condition and no obvious distension, though she was a very stout woman. With a view, therefore, of eliciting symptoms she was given one grain of calomel. Within an hour this was followed by violent fæcal vomiting. Operation was at once proceeded with and the abdomen was opened through the old hernial scar. Coils of matted intestine presented themselves and were separated one from another, but after doing this for half an hour Mr. Newbolt came to the conclusion that the intestine he was dealing with did not account for the trouble. On searching the left iliac region he came upon some coils of distended intestine and on tracing them downwards found a thick omental band which was binding the small intestines down and causing the obstruction. Mr. Newbolt thought that the band was a piece of omentum tied at a previous operation which had become attached to the posterior wall of the abdomen and under which a knuckle of gut had slipped. On dividing the band and ligaturing and removing the ends the bowel was at once released. The wound in the abdominal wall was closed with silk sutures and the patient was put back to bed. As before she made an uninterrupted recovery, her pulse never rising above 96, and when seen in July of this year she remained well.

CASE 4. *Acute appendicitis complicated by intestinal obstruction.*—The patient, a married woman, aged 37 years, was sent to Mr. Newbolt by Mr. S. Kellett Smith and was admitted to the Royal Southern Hospital on April 7th, 1903, suffering from symptoms of intestinal obstruction. On April 3rd the patient was taken ill with a severe bilious attack and her bowels acted on the following day. After this no flatus was passed and she was sick occasionally. Pain started in the left iliac region and gradually spread all over the abdomen. She had taken a purgative without effect and an enema brought away scybala. Though married for some years she had had no children; menstruation was regular and there was no history of any uterine trouble. On admission the patient, a well-nourished and healthy-looking woman, presented the following symptoms. The pulse was 100, the temperature was 101·4° F., the abdomen was tender all over and distended, and the tongue was dry. Nothing could be made out per rectum or per vaginam. Liver dulness was somewhat obscured by distended intestine. The patient being under chloroform, her abdomen was opened in the middle line when a good deal of peritonitic fluid escaped and distended intestines were seen. An examination showed that the intestines were bound down in the pelvis and so the Trendelenburg position was adopted. On enlarging the incision downwards it was evident that there was inflammatory mischief in the cæcal region and on attempting to free adhesions a large abscess was opened; sponges were packed in and the Trendelenburg position was at once abandoned. An incision was now made over the appendix and an abscess was opened deep in the pelvis on the right side. After some trouble the appendix, which had perforated at its base, was removed together with a stercolith which lay in the abscess cavity. This cavity, which was lined with a black sloughy membrane, was cleaned out and drained through the vagina and also through the iliac wound. On examining the left side of the pelvis through the median wound the intestines were found to be glued together and to the left ovary by recent adhesions and the large intestine was tied down by an omental band. After freeing this flatus at once was passed. Some four or five pieces of omentum which were adherent to the pelvis were removed, the parts were thoroughly sponged out, and the wound was closed, a glass tube being left above the pubes. Two hours after operation three grains of calomel were administered and the bowels acted freely through the night. On the next morning the distension was less, the pulse was 84, and the temperature was normal. The tube was removed from the vagina on the second day and a gauze drain was left in two days longer when on syringing through the iliac wound there was a free drain through the vagina. There was free discharge from both abdominal drains and some sloughs separated but the rest of the incisions healed well. The patient made a slow but good recovery, her chief trouble being intense pain in the bladder and frequency of micturition, though her urine was quite normal. These symptoms abated as the median drain track closed and no doubt were due to some inflammatory trouble involving the bladder wall. A cross examination elicited the fact (unobtainable before the operation) that she had had attacks of "cold in the stomach" on one or two occasions previously.

CASE 5. *Intussusception of the ileo-cæcal variety.*—The patient, a female child, aged nine months, was taken ill suddenly on the afternoon of May 21st, 1903, with pain in the stomach and vomiting. She was sent into hospital by Dr. W. G. Williams for operation. When Mr. Newbolt saw her 24 hours after the onset of the attack she was somewhat collapsed and had passed no motion since being taken ill, but there were blood and mucus on the diaper. Nothing definite could be felt through the abdominal wall, but on examination per rectum the finger passed up as far as possible together with pressure on the abdominal wall from above was just able to touch the apex of an intussusception. The child did not resist examination, being too collapsed. The pulse was 128 and the respirations were 28. On opening the abdomen in the middle line by a two-inch incision with the umbilicus at its centre an intussusception was at once seen and Mr. Newbolt was able to reduce the greater part of it from within the abdomen, but the last portion had to be brought outside and was reduced with difficulty, a portion of the ileum near the valve being much thickened and congested. The abdomen was rapidly closed with silkworm gut. The child was very ill for 48 hours; she was put to the breast soon after the operation and the bowels were moved in 36 hours. Recovery was uninterrupted and she is now in good condition.

Remarks by Mr. NEWBOLT.—An interesting point in Case 1 was the fact that although the patient had been vomiting fæcal matter for at least 24 hours before the operation, and this I afterwards learned was undoubtedly so, yet she had not the distressed appearance which is usually associated with this condition. The stone was no doubt passed by ulceration from the gall-bladder into the duodenum and two cases which I have recently seen substantiate this view. In one the gall bladder was adherent to the colon and full of pus which would but for surgical interference have opened into that viscus. In the other the gall-bladder, full of stones, was adherent to the duodenum and the stones would doubtlessly have ulcerated through had circumstances allowed them to do so. In one of the cases quoted by Barnard in his paper in the *Annals of Surgery* for August, 1902, the stone could be passed post mortem back along the duodenum through the aperture into the gall bladder whence it started. The idea that big stones passed through the dilated ducts is evidently fallacious. In my case I passed my hand up to the liver in order to feel for other stones, but I failed to discover anything abnormal and the patient's condition did not justify any prolongation of the operation.

In Case 2 the occurrence of a second obstruction of the same nature as that which necessitated the first operation is interesting; moreover, it shows the value of a guarded

prognosis in these cases. In Case 3 the fact that the patient underwent two severe but successful operations for strangulated umbilical hernia and one for obstruction by a band says much for the vitality of an unpromising looking patient with a very feeble pulse. The administration of calomel with a view of eliciting symptoms was, I think, justifiable on account of the difficulty in coming to a definite diagnosis and the feeling one had that an obstruction existed. Of course, everything was in readiness for immediate operation. Case 4 emphasises the value of early operation in cases of appendicitis whereby complications such as were met with in this case may be avoided. I am of opinion that had I opened the appendicular abscess from the right side in this case a second operation would have been necessary in order to relieve the obstruction caused by a binding down of the large intestine by inflammatory trouble, no doubt secondary to the appendicitis. I may add that on those few occasions on which I have been tempted to deviate from the rule of opening the abdomen in the middle line in cases of obstruction I have always regretted it. In Case 5—the intussusception—the more one sees of these cases the more one feels inclined to operate at once and not to waste time in employing other and less trustworthy methods of reduction.

BURY DISPENSARY HOSPITAL.

A CASE OF TRAUMATIC TETANUS; RECOVERY.

(Under the care of Dr. J. W. COOK.)

For the notes of the case we are indebted to Dr. A. G. Wilson, late senior house surgeon.

A youth, aged 19 years, a labourer, was admitted into Bury Dispensary Hospital on July 2nd, 1902, suffering from a severe crush of the right great toe. The injury had been caused by the fall of a piece of timber. Amputation was not considered unavoidable; the toe was dressed with boric lint soaked in boric lotion, the dressing being changed every four hours. On the third day after admission a slight blush was observable extending about half an inch from the wound; the latter was commencing to discharge a large quantity of pus. His temperature was 99·4° F. The dressing was changed to lint soaked in creolin solution of the usual strength and changed every four hours. During the next few days a portion of the toe sloughed and the wound discharged very foul pus. The evening temperature was usually 99·2° and the morning temperature was normal. The wound gradually became cleaner and on the tenth day after admission the dressing was changed to iodoform gauze. The patient was apparently progressing favourably but on the morning of the sixteenth day after admission (July 18th) he woke up complaining of slight stiffness of the neck and difficulty of opening the mouth. On examination the muscles of the neck were not abnormally hard and the mouth could be opened to almost its usual extent but risus sardonicus was present to a very considerable degree, the lips being drawn back, exposing the teeth, and the corners of the mouth being depressed. His temperature was normal. The patient, although he was in a state of intense fear at the idea of having lockjaw, grew no worse during the day. The wound which looked healthy was well rubbed with solid silver nitrate. On July 19th the patient had had a good night but on waking complained of severe pain in the back of the neck. He could open his jaws to the same extent as on the previous day. He complained of difficulty in swallowing and refused all but liquid food. One drachm of solution of hydrochlorate of morphia was given. His diet consisted chiefly of milk and eggs beaten up in milk. The temperature in the mouth was normal. There was no albumin in the urine. On the 20th the patient's condition was identical with that of the day before. His temperature was normal and there was no albumin. One drachm of solution of hydrochlorate of morphia was given to relieve the pain. On the 21st the muscles of the neck felt hard. There were no spasms. The temperature and pulse both morning and evening were normal. The patient had very little pain and was not at all exhausted but was very restless and continually wanted to be propped up in bed. On the 22nd the neck and masseter muscles felt like wood. The head was somewhat retracted and the patient complained of pain in the back. He had a few very mild spasms arching his back and neck during the day. His temperature was 99·4°. He took bread and milk and eggs and milk. On the 23rd the neck, back, and abdominal muscles were very rigid and hard. The temperature was 99·8°. The muscles of the jaw were rather better, those of the legs, arms, and hands being quite unaffected. The patient had not much pain. There were no spasms. Three drachms of syrup of chloral were given during the day and 20 cubic centimetres of Pasteur's antitetanic serum were injected. On the 24th the muscles of the neck and back were still rigid; the abdominal muscles were rather better. The tongue was foul. The pulse was 90 and the temperature was 99·6°. Four drachms of syrup of chloral were given during the day. On the 25th the muscles of the neck and back were unchanged and the abdominal muscles were more rigid. His temperature was 99·8°. Three drachms of syrup of chloral and 20 cubic centimetres of antitetanic serum were administered during the day. On the 26th the muscles of the thigh were rather rigid; there was much pain in the back of the neck. Ten cubic centimetres of serum were injected. There were no spasms. On the 27th the legs, back, and abdomen were much better. There was less pain. Ten cubic centimetres of serum were injected. On the 28th there was decided improvement. Ten cubic centimetres of antitetanic serum were injected. On the 29th the patient was better. There was no pain. Ten cubic centimetres of serum were injected. By August 2nd the patient was quite free from all muscular stiffness and was discharged on August 16th with the toe practically healed.

Remarks by Dr. WILSON.—The above case of traumatic tetanus may be found interesting owing to the mild character of the onset of the disease and to the long time which elapsed before the affection was at all severe. The following points in the case are of interest. The incubation period was above the average, as is usual in cases which recover. During the period of four days from the morning of the 18th to the evening of the 21st the patient did not get any worse. His temperature was never above normal and he slept well. During this period the risus sardonicus was extremely well marked. The patient was of a very neurotic type. Illustrating this on two occasions before the onset of the tetanus he complained of sleeplessness at night. He was given one drachm of water in a minim glass which he thought was solution of hydrochlorate of morphia. He not only slept all through the night but complained of excessive drowsiness all through the next day. This fact, together with the non-progress of the disease from the 18th to the 21st and the knowledge that immediately he complained of stiff neck the other patients told him he had lockjaw, suggested the possibility of his simulating the disease. On the morning of the 22nd, however, the true nature of the affection was unmistakeable. No local treatment beyond the one cauterisation with silver nitrate was undertaken. The injections of serum seemed undoubtedly to relieve the tension of the muscles as when they were stopped for one day he had a slight relapse. It is probable, however that he would have recovered without them as he never seemed at all exhausted.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

Annual General Meeting.—Presidential Address.—Adaptation and Compensation.

THE annual general meeting of this society was held on Oct. 12th, Mr. A. PEARCE GOULD, the President, being in the chair. The annual report was taken as read. The treasurer's report and balance-sheet were presented and adopted, it being pointed out that unusual expenditure had been incurred owing to the necessity which had arisen for legal proceedings in the enforcement of the terms of the lease of the premises occupied by the society. Votes of thanks to the retiring officers were proposed and adopted and the incoming President, Dr. F. DE HAVILLAND HALL, then took the chair.

At the ordinary meeting which followed Dr. de Havilland Hall delivered his presidential address, taking as his subject a brief retrospect of certain of the papers relating to diseases of the circulatory and respiratory systems which had been read before the society in the last 25 years. He directed attention to the two discussions on intrathoracic aneurysm, one having been introduced by Sir R. Douglas Powell in

December, 1889, and the other by himself in 1900. Besides these there had been numerous other papers on the same subject. The earliest communication within the period referred to was a paper read by Dr. T. Gilbart Smith in November, 1878, which illustrated the extreme difficulty of diagnosing cases of aneurysm with pressure upon the root of the lung, especially if there were pleural effusion in addition. The possibility of aneurysm should therefore be always borne in mind in all obscure intrathoracic conditions. The President commented upon the absence of any definite statement as to the position of the left vocal cord in cases of intrathoracic aneurysm. He had almost always found it fixed in the cadaveric position, whereas the late Dr. W. M. Ord had usually found the vocal cord fixed in the position of abduction. This was a point which might certainly be cleared up without much difficulty. In most of the papers the action of iodide of potassium was commented on. Sir Benjamin Ward Richardson could see "no physiological reason for its value." Remarkable diversity of opinion existed on the subject. Was there any more general consensus now, 18 years after the discussion, and was not this a question which required to be settled? One thing iodide of potassium certainly did, it relieved pain. As early as March, 1881, the attention of the society was directed to the subject of malignant endocarditis. The mode of entrance of the germs producing the disease was discussed as well as its nomenclature. Dr. Sidney Coupland suggested "septic" or "malignant" as the best name for the disease. In a paper read in March, 1885, Dr. Coupland commented on the difficulty in deciding when the malignant character was grafted upon the chronic sclerotic changes in the valves. In one of the cases recorded recovery followed after the administration of sulpho-carbolate of sodium. The President expressed a hope that in the discussion which was to take place on the use of serum and other inoculations in pyogenic infections some reference would be made to the treatment of malignant endocarditis. In commenting on a case of relapsing or intermittent pneumonia communicated by the late Sir Andrew Clark in 1884 the President drew attention to the statement that in about one third of his hospital patients there was absence of cough and expectoration and he remarked that pneumonia occurring in gouty subjects was particularly liable to be so characterised. The President agreed with the caution which Sir Andrew Clark expressed as to the necessity of not overloading the system by too much nourishment, and also with the view that on the whole stimulants did more harm than good. The important subject of venesection in pneumonia was raised by Dr. F. Lucas Benham, and the cases he quoted were most convincing as to the good effect of this method of treatment in certain cases of pneumonia. The diseases of the pleura had been the subject of numerous and valuable papers. The first in the period under consideration was in 1880 by Sir William H. Broadbent who pointed out how the physical signs were modified when the lung was large and consolidated and deeply immersed in the fluid. Two most important discussions had taken place upon empyema and its treatment. The first was based upon a paper by Dr. Thomas Churton of Leeds. He divided cases of empyema into three sets or species—(1) those on the outer aspect of the lung; (2) those at the base between the lung and the diaphragm; and (3) those on the inner aspect between the lung and the spine and the mediastina. It was from a failure to recognise the varied situations of an empyema that mistakes in diagnosis occasionally arose, but the diagnosis of a small empyema between the lobes of the lung was a mattter of the greatest difficulty. The discussion upon the treatment resolved itself mainly into whether simple incision or resection of a portion of one or more ribs should be practised and the President expressed himself in favour of the latter. The two most weighty communications on pneumothorax and pyopneumothorax had been made by Dr. Samuel West which had led the President to modify the view which he formerly held as to the undesirability of interfering with pyopneumothorax due to pulmonary tuberculosis and he alluded to a case recently under his care to prove that even advanced disease of the lung was no necessary contra-indication to incision and drainage of the pleural cavity should pyopneumothorax be present.

Dr. G. A. GIBSON (Edinburgh) read a paper entitled "Adaptation and Compensation," illustrated by lantern slides. The anatomical changes in acromegaly, arterial hypermyotrophy, arterio-sclerosis, cardiac degeneration, and other degenerative changes were brought forward and described in illustration of the processes of adaptation and compensation. (This paper will shortly appear in our columns.)—Dr. J. MITCHELL BRUCE remarked on the application of these same processes in therapeutics.—Dr. A. G. AULD recalled many observations by the late Professor Coats of Glasgow showing that sclerotic changes in the arteries depended on deficient nutrition.—Dr. GIBSON replied.

CLINICAL SOCIETY OF LONDON.

Erosive Gastric Ulceration successfully treated by Operation.—Cases of Acute Hæmorrhagic Pancreatitis.

A MEETING of this society was held on Oct. 8th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Sir DYCE DUCKWORTH and Mr. H. T. BUTLIN communicated a paper on a case of Erosive Gastric Ulceration with Severe Hæmatemesis; Operation; Recovery. The patient was a woman, aged 29 years, who was admitted into St. Bartholomew's Hospital on Nov. 21st, 1902. There was a history of three weeks' pain after food but no vomiting or hæmatemesis until the day before admission. The bleeding continued to recur in spite of adrenalin chloride, rectal feeding, and other measures. On Dec. 4th Mr. Butlin took over the care of the patient and with the assistance of Mr. C. B. Lockwood opened the abdomen and made an incision in the anterior wall in the long axis of the stomach. Nothing that could be called an ulcer was found on examining the interior of the organ, but in the greater curvature near the pylorus the mucous membrane over several square inches was pink and markedly different from the rest of the membrane which was of an ivory yellow tinge. At various points on this pink area were found slight excoriations, fissures, and tiny points from which blood slowly oozed. Nine of these points were ligatured with a purse-string suture of fine silk thread and the opening in the stomach was closed by a continuous silk suture which embraced all three coats. The abdominal wall was closed by three layers of continuous silk sutures the ends of which were left out at each end of the wound. The operation lasted three-quarters of an hour and was well borne, not more than a drachm of blood being lost. Some vomiting followed the operation. On Dec. 5th the temperature fell from 101° to 99° F. Three ounces of acid green fluid were vomited but no blood. Feeding was carried on by the bowel, while saline solution, one pint, with a drachm of liquor calcis saccharatus in it, was also administered by the rectum. By Jan. 9th the patient was taking boiled fish and on the 14th minced meat. By Feb. 4th she was well and was sent to the Convalescent Home at Swanley. The case afforded confirmation of the observations of other investigators on the occurrence of oozing of blood from several small points at once as distinct from ulceration. The condition of the gastric mucous surface discovered in this case was probably the starting point of most if not of all, gastric ulcers and it seemed probable that if the hæmorrhages dependent on it proved fatal in any instance the actual lesions would not be detectable after death.—Mr. C. W. MANSELL MOULLIN recalled the paper which he had read before the Clinical Society three years ago on this subject and which was published in THE LANCET.[1] He had operated in 11 cases of erosive ulcer and he discussed the differences in the appearances of the mucous membrane during life and after death. He urged that operation in these cases should be undertaken before the patient had become too exhausted. It had been stated that hæmatemesis was only fatal in 3 per cent. of the cases of gastric ulceration but he pointed out that no one had ever proposed to operate in every case of gastric ulcer. Only about 10 per cent. of the cases were really serious and these only concerned the surgeon. The indication for operation was the occurrence of a succession of severe hæmorrhages, especially if associated with intense anæmia and if medical measures had failed.—Dr. F. DE HAVILLAND HALL agreed as to the indications for operation but demurred to the statement that 10 per cent. of the cases were serious, adding that in nine years at the Westminster Hospital, although he had seen many cases of gastric ulcer, not one of them had proved fatal and in only one instance had operation been performed. While admitting the occasional need for operation he believed it was only rarely called for.—Mr. ARTHUR E. BARKER advocated the operation of gastro-duodenostomy which not only tended to bring about cessation of the bleeding but also gave the

[1] THE LANCET, Oct. 20th, 1900, p. 1125.

stomach rest and enabled it to empty its contents.—Mr. F. C. WALLIS commented on the difficulty of making out the situation of the ulcer from external examination of the stomach and he advocated making an incision into the organ for that purpose.—DR. WILLIAM PASTEUR discussed the differential diagnosis of hæmatemesis from gastric erosion and that due to gastric ulceration. In the former the hæmorrhage was, he believed, constantly recurring.—Mr. C. R. B. KEETLEY observed that the practice of operating to find the bleeding spot might be all very well when every possible facility was available but it was hardly practicable in every case. In a severe case of his own he experienced considerable difficulty in locating the bleeding spot, although he had opened the stomach pretty freely. He ultimately found that the ulcer was adherent to the diaphragm. He separated the adhesions and packed the cavity and the patient recovered, though she subsequently had to undergo gastro-enterostomy, an operation which he held in great esteem. He referred to a paper by Mr. Willoughby Furner.[2]—Mr. BUTLIN, in reply, remarked on the enormous hæmorrhages which might occur from tiny bleeding points in the stomach, just as they could in similar circumstances from the nose. While admitting the difficulty of discovering these points he thought it better, speaking as a surgeon, to attack these bleeding spots directly whenever that was possible. If they could not be located gastro-enterostomy might be performed but even this did not always check the hæmorrhage.—Sir DYCE DUCKWORTH, in reply, emphasised the necessity of recognising the type of case in which operation was called for—namely, that in which sudden profuse and successive hæmorrhages occurred. This was a character which he believed attached to erosions as distinct from simple ulcer of the stomach. Other differential features were the suddenness of the onset without much previous history and without pyrosis. Discussing the etiological factors, he remarked on the frequent association of gastric ulcer with intense anæmia and with the wearing of tight corsets.

Mr. ANTHONY A. BOWLBY, C.M.G., communicated a case of Acute Hæmorrhagic Pancreatitis. The patient was a man, aged 41 years, who was seized with severe abdominal pain and vomiting on Nov. 19th, 1902. During the next two days there was some complaint of flatulence and constipation and the vomiting continued. The abdomen was tender but no swelling could be felt. The bowels acted well after enemata. On the third day of the illness the patient became delirious and from that time onwards suffered from delusions. The urine was very greatly diminished in quantity. On the fifth day after the illness commenced there was a sudden attack of pain with severe vomiting, followed by great and rapid distension of the abdomen and complete obstruction. For the relief of this his abdomen was opened and there was found to be some general early peritonitis with old adhesions but no mechanical obstruction of the bowel. A coil of the small intestine was opened to relieve the distension but failed to save the patient's life. The post-mortem examination showed a very large hæmorrhage surrounding the pancreas and extending down to the pelvic region. The pancreas also was engorged with blood and there was general peritonitis.

The PRESIDENT also made a communication on a case of Acute Pancreatitis. The patient, aged 68 years, was admitted into Guy's Hospital on Feb. 3rd, 1899. At a public-house he had ordered some rum and had filled up his glass from a bottle supposed to contain water and had drunk the whole. This bottle was afterwards said to contain oxalic acid of unknown strength. Emetics were given and he vomited freely. Though not apparently much affected at first he afterwards became collapsed, tremulous, and cyanosed, but recovered towards the evening. On admission the mouth and lips were slightly excoriated. He was suffering from emphysema and slight bronchitis. On the following day he appeared to be well and left at his own urgent request. He went home by train a distance of five or six miles, arriving very feeble and ill, and two days later he returned to the hospital. He was then cyanosed, feeble, with rapid pulse and breathing. There was now no soreness of the mouth or epigastric pain or pain on swallowing. His bronchitis was worse and this became the prominent feature, with increasing feebleness of the pulse, until his death on the 23rd. Post mortem there was emphysema of the lungs, with purulent bronchitis and pleurisy. Ten ounces of blood were found in the substance of the great omentum and the pancreas presented a condition of interstitial hæmorrhagic pancreatitis, was enlarged, hard, and infiltrated with blood. There was neither peritonitis nor fat necrosis. The kidneys were slightly granular. The President discussed the relation of the condition of the pancreas to that of the chest and to the ingestion of the oxalic acid. The entire latency of the pancreatic lesion was pointed out as the two other conditions combined to mask the symptoms which might have been attached to it.—Mr. BARKER remarked on the copiousness of the vomiting in these cases and asked if this had been noted by Mr. Bowlby and the President.—Mr. L. A. BIDWELL referred to a case in which he had operated last year. He had at first diagnosed pus in the gall-bladder but at the operation the gall-bladder and ducts were found to be healthy and in pursuing his exploration he let out a quantity of fluid from a cyst, after which the patient recovered. He had heard, however, that the patient had subsequently died and he supposed that a fresh collection had formed.—Mr BOWLBY, in reply, said that the vomited matter in his case was very copious considering how little fluid the patient took.

[2] THE LANCET, Dec. 31st, 1898, p. 1761.

SOCIETY FOR THE STUDY OF INEBRIETY.—A meeting of this society was held on Oct. 13th at the rooms of the Medical Society of London, Dr. Harry Campbell, the President, being in the chair.—Sir William J. Collins delivered an address entitled "The Institutional Treatment of Inebriety." He said that he approached the question rather from an administrative than a therapeutic standpoint. As first chairman of the London County Council Inebriates Acts Committee he had taken part in founding the certified reformatory at Farmfield, Horley, and as a visitor of Aylesbury Gaol he had watched the establishment and working of the State Inebriate Reformatory for women recently opened there. The Inebriates Act of 1898 had initiated an entirely new method in the treatment of the habitual offender and opened up new possibilities in their whole penological system. Some had regarded the process of amelioration of the lot of the sinner and the sot as having gone too far and denounced with Spartan rigour the softness of this degenerate dispensation. In administrative matters softness of heart was an insufficient compensation for the lack of hardness of head. In view of the difficulties encountered in housing even the industrious working classes in their large towns at rents alike payable and paying, he confessed he sometimes felt that in some directions they were in danger of making the way of the transgressor too soft. Having said this, he fully indorsed the view that in regard to the inebriate it was right to make the experiment—for as an experiment he looked upon it—of seeing what could be done under the optional powers given to county and borough councils by the Act of 1898. The old miserable round of repeated short sentences had proved a sorry and revolting farce as a means of reclamation. The prison, the asylum, the hospital, and the reformatory had all their uses in their social betterment, but up to the present the sorting of their contents had sometimes been somewhat perfunctorily performed. The greatest discrimination was required in so-called "borderland" cases in order to decide how to classify and how to treat the particular individual. Questions of moral responsibility were raised which required the thoughtful consideration alike of the philosopher, the physician, and the jurist, and the practical coöperation both of the large-hearted philanthropist and the common-sense scientist. They were in danger of the official and the commonplace so scornfully denounced by Charles Reade in that splendid contribution to solid fiction, "It's Never Too Late to Mend." Inebriety was called a disease, but it was a *disease of the will*. As with the hysteric, the inebriate said, "I cannot"; it looked like "I will not"; it was "I cannot will." Its successful treatment involved the problem of how to rehabilitate a human will. To restore the physical norm was the first essential but it was only the beginning of treatment. Alcohol in any form should be absolutely and at once withdrawn, both as drink and drug. It was on the moral plane they must work if they were to reconstruct character and not merely regulate conduct. Hedonism and necessitarianism would prove false guides and uninspiring mentors in the task of individual reclamation and social regeneration, even though they pursued the paths of despotic philanthropy so much in vogue in certain circles. Appeal must be made to higher sanctions than those of pleasure or even prudence. Frank recognition must be conceded to a conscious partnership of each individuality in the architecture

of his or her own character. Means which did not appeal to a will free to choose, a will actuated by ideals which transcend natural and merely physical sanctions, might suffice to mould an automaton but would not restore a character. To this end all treatment should be directed. Removal from old associations, from town life back to nature, to work in the field or on the farm—work that grows and progresses under the hand by preference, exciting interest and perseverance towards an end in view. Habits of industry and fixity of purpose were thereby inculcated. Voluntary cooperation must be enlisted and almost everything depended on the personal influence of those in charge. Before returning to the world it was of the utmost importance that friendly help and supervision were secured. The work demanded tact and patience and the highest qualities of head and heart. A social experiment it was, but one which, in view of their national vice, deserved to be well and truly tried.

FORFARSHIRE MEDICAL ASSOCIATION.—A meeting of this society was held in the University College, Dundee, on Oct. 2nd, Professor A. M. Stalker being in the chair.—Mr. D M Greig read notes of a case of Gunshot Wound in the Chest in which a Mauser rifle bullet had traversed the right chest and at its exit had fractured the tenth rib. As a sequel to this the tenth intercostal nerve had been caught and compressed by the cicatrix. This was followed by the onset of an unusual spasm of the respiratory and of the extra-respiratory muscles. Excision of the fractured rib and resection of the nerve had been followed by immediate and permanent relief from the symptoms.—Dr. A. McGillivray read a paper on the Use of Protargol in Ophthalmic Practice. He considered that protargol was one of the most valuable therapeutic agents at present available in the treatment of certain conjunctival affections. It possessed obvious advantages over nitrate of silver, for it was not precipitated by the chloride of sodium of the tears and it did not really coagulate the albumin of the tissues. A 1 per cent. solution dropped freely into the eyes thrice daily in catarrhal conjunctivitis gave better results than any remedy he knew of. In certain forms of epiphora it might be combined with a solution of chloride of adrenalin of a strength of 1 in 10,000. In purulent conjunctivitis of the newly born he obtained excellent results by the use of a 10 per cent. solution of protargol freely dropped into the eyes after the removal of all discharges by copious flushing with tepid normal saline solution.—Mr. Greig said that a weak solution of protargol was a most valuable remedy for the treatment of specific urethritis.—Dr. J. Orr said that he had used 15 and 20 per cent. solutions which had caused severe pain. Now he was accustomed to use from 2 to 5 per cent. solutions and had heard no complaints of their painfulness.—Mr. G. Halley read short notes of ten cases of Strangulated Hernia. He mentioned that though the number of the cases was small they were representative of sufficient varieties to be of interest. The oldest patient was 80 years of age and the youngest was five months. In only one case was the bowel gangrenous. This was resected and an end-to-end anastomosis was performed. The patient, however, succumbed on the next day. One other patient died seven days after the operation. In this case the bowel was healthy and was returned but the patient's condition was not good.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on Oct. 8th, Dr. Heywood Smith, the President, being in the chair.—The President showed the following specimens, reading notes of the cases: 1. A large Fibroid Tumour in Calcareous Degeneration removed from a sterile married woman still menstruating though 50 years of age. The ovaries were cystic and were first removed, an elongated pedicle attaching the tumour to the fundus was ligatured and divided, and as the uterus was found to be studded with fibroids a supravaginal amputation was then performed. The tumour was everywhere permeated with calcareous matter and there was much difficulty in making a section of it. 2. Pyosalpinx (gonorrhœal?), Enlarged and Cystic Ovaries, and Parovarian Cysts. 3. Sclerotic Ovaries from two cases each marked by menorrhagia and dysmenorrhœa, the ovarian envelope in the one being smooth and in the other corrugated like the surface of the brain.—Dr. H. Macnaughton-Jones showed, amongst other specimens: 1. Degenerating Fibroma from a patient approaching the menopause. 2. A Microscopical Section of Duct Carcinoma from an isolated encapsuled growth deeply buried in the adipose tissue of the axilla; no other gland was involved. The mamma of the same side, weighing over three pounds, was subsequently removed but disclosed no trace of malignancy. 3. Temperature Charts and Tumour from a case in which an apparently perfect convalescence after hysterectomy in a woman, aged 55 years, was interrupted on the twentieth day by necrosis of the stump and cellulitis, leading to a hard infiltration extending half-way to the umbilicus. 15 days later, the condition of the patient being desperate, he made an incision from the pubes to the left iliac crest and as aspiration failed he, without opening the peritoneum, carried his incision down into the pelvis and reached a necrotic slough and a cavity containing pus (not fœtid); this was cleared out and disinfected and with subsequent drainage the patient made a good recovery.—Dr. Bedford Fenwick showed a Uterus with Multiple Submucous Fibroids removed from a woman, aged 54 years, seven years after the menopause. For four years she had suffered from irregular and sometimes profuse hæmorrhage, relieved but recurring after the removal of a polypoid growth projecting from the cervix, again by that of a hard almost calcareous growth, and similarly on several subsequent occasions; the last mass taken away was like a piece of an orange. Lately the bleeding had become more profuse, the discharge more offensive, and she had rapidly lost flesh and strength. On admission to hospital a soft friable mass could be felt just inside the cervix, to the touch just like malignant disease. She had a temperature of 102°F. and a pulse of 110, and from the history a diagnosis of sloughing intra uterine fibroid was made. The case exemplified the fallacy of supposing that fibroids did not grow after the menopause and was interesting from the manner in which it suggested malignant disease. An earlier radical operation might have saved her much suffering but she made a good recovery from the operation.—In the discussion which followed Mr. A. W. Mayo Robson said that he did not think that the calcareous degeneration of fibroid tumours could be explained by deficient circulation through a small pedicle; though generally superficial it was not always so.—Dr. C. H F. Routh and Dr. J. A. Mansell Moullin related cases analogous to the one of cellulitis reported by Dr. Macnaughton-Jones.—Mr. F. Bowreman Jessett, Dr. Richard T. Smith, Dr. Herbert Snow, Dr. J. Oliver, Mr. T. Rushbrooke, Mr. Skene Keith, and Dr. F. A. Purcell also spoke and the President and Dr. Macnaughton-Jones shortly replied.

PATHOLOGICAL AND CLINICAL SOCIETY OF GLASGOW.—The first meeting of the session for 1903-04 took place on Oct. 12th, Mr. A. E. Maylard, the President, being in the chair.—Dr. J. K. Kelly showed (1) a specimen of Hydronephrosis which simulated a Parovarian Cyst, and (2) specimens of Uterine Myomata removed by Operation.—Dr. A. N. McGregor showed a girl, aged 15 years, with a large Diffuse Venous Nævus of the Thigh. It had been increasing in size but treatment by ligature of several of the largest veins had led to considerable consolidation and apparent arrest of the growth.—Dr. John Patrick showed a specimen of a Large Congenital Umbilical Hernia. The sac ruptured about 36 hours after the birth of the infant and was therefore removed, the hernia reduced, and the wound closed. The patient died apparently from shock in a short time.—Dr. R. Barclay Ness described the clinical features of a case which presented post mortem a Chronic Gastric Ulcer and Miliary Tuberculosis. Specimens from the case were demonstrated by Dr. A. R. Ferguson.—Dr. J. MacGregor Robertson demonstrated a new form of Hæmoglobinometer (Dare's of Philadelphia) which appeared capable of particularly easy and rapid application.

INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The annual general meeting of this society was held at the Holborn Restaurant, London, on Oct 9th.—Dr. Joseph Groves, the new President of the society, gave an address on Rural Water-supplies. The President, who is medical officer of health of the Isle of Wight rural district, said that, speaking generally, surface supplies liable to contamination furnished the large majority of the rural population with water, while a comparatively small minority were supplied by springs from the older rocks and deep wells not liable to pollution. Most of the surface water sources of supply would probably not satisfy the sanitary test of wholesome water but to a large extent their use was inevitable. An agricultural drain-pipe projecting through a bank and discharging water from land drainage into a ditch was a boon to many a cottager and as the pipes were laid

at a good depth to avoid the plough the water, though liable to contamination, was not necessarily unwholesome and it was often soft. Wells were the chief sources of domestic water-supply in most rural districts. The majority were surface soak wells and in the agricultural villages they were usually dip wells situated in vegetable gardens highly fertilised with pig and human manure. The simplest way to obtain a water-supply for a parish was to go to the head of a perennial stream, high up on the side of a hill if possible, to collect the water as it left the rock in a sufficiently large reservoir and to convey it in pipes to the parish. If such a plan was not practicable water must be pumped to a height from which every house in the parish could be supplied. After discussing the various methods of pumping the President concluded by saying that if he were asked how a medical officer of health might be enabled to indicate to his authority the existence of a porous stratum in which enough water was held up to supply a particular parish or combination of parishes he would say that every medical officer of health of a rural district should be familiar with the elements of the science of geology. Then with local knowledge and the aid of the drift map and the sections of the district prepared by the Geological Survey the medical officer would not be likely to lead the local authority astray.

NORTH-EAST LONDON CLINICAL SOCIETY.—This society opened its fourth session with a meeting held at the Tottenham Hospital on Oct. 8th, Dr. J. W. Hunt, the President, being in the chair.—Dr. G. E. Herman read a paper on Midwifery from the Point of View of Preventive Medicine and a discussion followed.—The officers of the society for the session 1903-04 are as follows: President: Dr. T. W. Hunt. Vice-Presidents: Dr. F. H. Daly, Mr. W. Edmunds, Dr. F. de Havilland Hall, Dr. R. Murray Leslie, Dr. E. Hooper May, Mr. J. S. Sequeira, Dr. T. Gilbart Smith, and Dr. F. J. Tresilian. Treasurer: Dr. Arthur E. Giles. Council: Mr. C. Billson, Mr. R. P. Brooks, Dr. S. E. Dore, Dr. R. E. Foott, Dr. E. A. Lermitte, Dr. G. N. Meachen, Dr. D. Petty, Dr. A. S. Ransome, Mr. T. Rushbrooke, Mr. R. F. Tomlin, Dr. A. J. Whiting, and Dr. C. H. Wise. Secretaries: Mr. H. W. Carson and Mr. C. E. Hutt.

TORQUAY MEDICAL SOCIETY.—At the opening meeting of the session held on Oct. 9th, the President, Dr. J. H. Harris, being in the chair, an address was delivered by Mr. W. Watson Cheyne entitled "Modern Surgery," in which the lecturer insisted that the great advances in operative surgery after the introduction of asepticism were due to what might be summed up in the one word "thoroughness," illustrating this by numerous cases drawn from his own practice and covering nearly the whole range of operative surgery.—The annual dinner was held in the evening and was well attended, Mr. Watson Cheyne being the chief guest.

Reviews and Notices of Books.

The Imperfectly Descended Testis: its Anatomy, Physiology, and Pathology. By W. MCADAM ECCLES, M.S. Lond., F.R.C.S. Eng., Assistant Surgeon to, and Demonstrator of Operative Surgery at, St. Bartholomew's Hospital, &c. With 44 Plates. London: Baillière, Tindall, and Cox. 1903. Demy 8vo. Pp. 140. Price 7*s.* 6*d.* net.

THE importance of the imperfectly descended testis from a pathological point of view is only now beginning to be fully recognised. Much has, indeed, been written on the subject and many cases have been reported, but very little has been done to study systematically the various misplacements of the testis and the morbid conditions to which this malposition tends to give rise. Therefore Mr. McAdam Eccles's work, which is based on his Jacksonian essay, is of the greater value as it forms one of the earliest attempts to consider adequately this important subject. Many of the abnormalities which we find in the human body are explicable only by a full knowledge of the embryology of the structure concerned and this is also to some extent true of diseases and new growths. Therefore it is natural that this work should commence with an account of the development of the testis. This is sufficiently full to explain many of the abnormalities of the organ and the description of the descent of the testis shows that its various malpositions are due to an arrest of the testis as it passes downwards. Then follows an account of the anatomy of the testis which has imperfectly descended and Mr. Eccles points out that the histological characters are very different from those exhibited by the organ when normally situated. The seminiferous tubules are smaller, shorter, and fewer in number and the amount of interstitial tissue is correspondingly increased. As to the physiology of the misplaced organ Mr. Eccles considers that the generally accepted view that it is incapable of forming healthy spermatozoa is not universally true though the exceptions are rare. This fact is of some importance in connexion with the question of the removal of misplaced testes. Moreover, though double ectopia or arrest may as a rule mean absolute sterility, yet it is probable that the internal secretion is still formed, for the virile voice and appearance are present. The succeeding chapters deal with inflammation and new growths of the undescended testis and a very interesting account is given of torsion of the cord of such an organ; several chapters are devoted to the very important subject of hernia in relation to imperfect descent. There is a close association between the two conditions as is shown by the frequency with which they occur together. The book is clearly and carefully written and, moreover, is of great interest.

Hystérotomie et Hystérectomie en Obstétrique. By Dr. V. BUÉ. Paris: F. R. de Rudeval. 1903. Pp. 454. Price 6 francs.

IN this work, for which Dr. Bué was awarded the Prix Tarnier by the French Academy of Medicine in the year 1902, the author has studied the indications for the performance of the operations of hysterotomy and hysterectomy as met with in obstetric practice. With the aid of personal observations and the experience of others he has considered in detail all the varying conditions in which one or other of these procedures may be required. In coming to a decision on this most important question it is obviously impossible to lay down any hard-and-fast rules that will be applicable to all cases, and Dr. Bué has therefore been content with quoting the opinions of all those who have written upon this debatable subject. The scope and completeness of the work will be apparent when we point out that in some 13 chapters the author passes in review the treatment of contracted pelves, eclampsia, atresia of the vagina, rigidity of the cervix, intra-uterine putrefaction of the fœtus, and pregnancy complicated by fibroid tumours or cancer of the uterus. He also considers the results to be obtained by removal of the uterus in cases of rupture of that organ and in cases of acute septic infection. The rarer indications afforded by such conditions as ovarian tumours complicating pregnancy, hydatidiform moles, inversion of the uterus, retraction of the ring of Bandl, and placenta prævia are also discussed in their relationship to hysterotomy and hysterectomy. The last two chapters are devoted to vaginal Cæsarean section and the technique of the various operations under consideration. In an appendix are given the details of nine cases of Porro's operation from the clinique of Professor Gaulard.

This monograph does credit to the author's industry and, containing as it does a large number of the opinions and observations of various writers, will prove of value as a work of reference to those interested in this important subject.

LIBRARY TABLE.

The Private Nurse's Own Note Book. By Sister EVA. London: Bemrose and Son. Pp. 96. Price 6*d.*—This is a little book containing hints to private nurses by a nurse with regard to their behaviour. The hints are sensible and, we think, needed. Sundry recipes for

"Dainty Dishes" are given, some of which are good but we cannot agree that wine jelly should be made with cornflour. The proper way to make it is with calves-feet, isinglass, or gelatin. Moreover, cornflour should not be put into a custard. Custard is, or should be, milk and eggs, with sugar and flavouring if desired. The collection of recipes which is headed "Recipes" is good. It might be as well in a future edition to explain the word "marc," for we doubt whether the average nurse knows what it means.

Practical Guide to Surgical Bandaging and Dressings. By W. JOHNSON SMITH, F.R.C.S. Eng. London: The Scientific Press. Pp. 167. Price 2*s.*—Mr. Johnson Smith is well known as an admirable teacher and in this little book we find all the clearness and practical common-sense which characterise his oral instruction. The information given will be found invaluable by nurses and dressers and even by young practitioners just starting in practice. For a young practitioner who may have been a house surgeon sometimes finds that when he starts in practice he is a little at sea without the aid of his dressers, his nurses, and the ward sister, and possibly the practitioner who has not held a resident post is in worse case, but this little book will put both of them in the right way.

Polyphase Currents in Electrotherapy. By GEORGE HERSCHELL, M.D. Lond. London: Henry J. Glaisher 1903. Pp. 44. Price 2*s.* 6*d.*—Dr. Herschell has already given some account of the therapeutic use of polyphase electric currents in his "Manual of Intragastric Technique," and in the present monograph, which is a reprint of a paper read before the British Electro-therapeutic Society in February, 1903, he has treated the subject of these particular currents in much ampler detail. He has found that the external application of triphase currents has a remarkable effect in increasing the tension and amplitude of the pulse tracing and also in increasing the excretion of urea when it happens to be subnormal. Three electrodes are used with triphase currents and for the purpose just mentioned each of them consists of a piece of felt having an area of 24 square inches and placed one on each side of the spine and one in front of the abdomen. More important still is the action of the current on unstriped muscular fibre, which renders it useful in the treatment of atonic dilatation of the stomach and in the relief of chronic constipation due to intestinal atony. On account of its effect on the blood pressure the triphase current is also indicated in various forms of neurasthenia associated with arterial hypotension. The apparatus used by Dr. Herschell for the production and application of the currents is described at some length and shown in drawings.

First Aid. By R. J. COLLIE, M.D. Aberd., and C. F. WIGHTMAN, F.R.C.S. Eng. London: George Gill and Sons. 1903. Pp. 125, including index. Price 6*d.* net.—It was the wise man who said "Of the making of many books there is no end," and his dictum is specially true of manuals on first aid. But the little work before us, which is by the superintendent and a lecturer respectively of the ambulance classes of the London School Board, is an excellent example of its kind. It deals with really "first aid" and does not attempt to teach too much anatomy and physiology. The book is illustrated with reproductions of photographs evidently taken from scenes which have occurred in the ambulance classes, but we think that the photograph on p. 46, showing the application of a tourniquet to the femoral artery applied *over* a boy's knickerbockers is a mistake, for anyone learning from the book without a teacher might think that the tourniquet should be applied in this way. Of course this is a mere oversight, for on p. 92 in a paragraph on the management of the clothes in a street accident the reader is told, "*Never* remove the clothes in a case of accident unless absolutely necessary—e.g., in cases with bleeding." In the paragraph on sprains, p. 27, we see that cold water is recommended; we think that hot water should have been mentioned too. Some patients much prefer hot water to cold and less harm is done if the warm application is not continuous, but if cold be employed the parts should not be allowed to become warm between the applications. The directions for the emergency treatment of poisoning are very good and so clearly written that anyone of ordinary intelligence cannot fail to understand them.

Practical Nursing. By ISLA STEWART and H. E. CUFF, M.D. Lond. Vol. II. London and Edinburgh: William Blackwood and Sons. 1903. Pp. 201. Price 3*s.* 6*d.*—When we reviewed the first volume of this excellent work we said that nurses would doubtless wait with eagerness for the second volume. They have had to wait some time, but their patience has been amply rewarded. Vol. I. was devoted to nursing in general while Vol. II. deals with the nursing of special medical and surgical cases. The first two chapters describe the nursing of enteric fever and diphtheria and are altogether admirable, more especially the directions for the feeding of a patient. Matters have certainly changed since the time of Graves who, it will be remembered, desired that his epitaph should be "He fed fevers," and nowadays we think that the tendency is to overfeed rather than to underfeed. If a fever patient shows a marked distaste for food—i.e., milk—he may, we consider, be generally left safely for 24 hours with no nourishment but plain water, or possibly water with a little egg albumen dissolved therein. Scarlet fever, measles, and whooping-cough are dealt with together in Chapter III.; but in our opinion in a future edition some reference should be made to the hæmorrhagic form of measles though possibly the authors consider that such a rapidly fatal disease has but little need for either nursing or treatment. In the chapter on respiratory diseases we are glad to see a reference to bleeding in pneumonia but no mention is made of this treatment for bronchitis; leeching, however, is given as a remedy for the acute pain of pleurisy. We need not go on to consider the rest of this work in detail, for we have said enough to demonstrate its qualities. We will only add that it is eminently practical and full of useful "tips"—e.g., the hint on p. 137 for removing the wool on a Playfair's probe by unrolling it under water and the caution against overfeeding patients suffering from extensive burns.

New Inventions.

A NEW COLOTOMY DILATOR.

I HAVE had constructed a dilator which has proved to be very satisfactory in a case under my care in which colotomy was performed. A few weeks after the operation cicatricial contraction became very troublesome. I tried two or three different kinds of dilators but found them ineffective. I therefore used rectal bougies, but their passage required considerable force and caused severe pain which frequently produced syncopal attacks lasting an hour or two. This new dilator, which is made of steel and is nickel-plated, has the general appearance shown in the illustration. Its total length is three inches and the projection of the blades, which are placed at right angles to the plane of the shanks, is one and a quarter inches. The blades are rounded off into bulbous enlargements at their ends, the inner face being kept flat so that they can be brought close together for insertion. The total separation allowed for when the blades are open to the fullest extent is two inches. The instrument has a thumb screw with a quickly running thread. After being inserted into the wound the blades are separated by means of the screw. The whole instrument has been made to occupy as little space as possible, so that when in position it lies flat against the

surface of the body without any awkward projection and allows the dressing and clothes to be arranged in the same manner as when the instrument is not in use. It can be left in position as long as may be desired without causing any inconvenience to the patient. The amount of force used in producing or maintaining dilatation can be regulated to a

nicety by means of the screw. I also find that it does not cause any cracking of the skin. It retains its position accurately and not only allows but facilitates the passage of flatus and discharge, the latter of which is often abundant towards the end of cases of rectal cancer. With it dilatation can be effected thoroughly and yet so gradually that it is practically painless. To maintain dilatation the instrument can be used for an hour or so each day.

I have to thank the makers, Messrs. Brady and Martin of Newcastle-on-Tyne, for the admirable manner in which they have carried out my ideas.

Darsley. R. ADAMS BREWIS, M.D. Edin.

Analytical Records FROM THE LANCET LABORATORY.

(1) TABLOID IRON, ARSENIC, AND DIGITALIN; AND (2) TABLOID BUTYL CHLORAL HYDRATE AND GELSEMINE.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

(1) In the compound tabloid of iron, arsenic, and digitalin the iron occurs in the form of soluble phosphate which, whilst readily assimilable, does not give rise, it is stated, to constipation. This salt is said also to be without objectionable effect on the digestive processes. Each tabloid contains three grains of soluble phosphate of iron, $\frac{1}{100}$th of a grain of arsenious acid, and $\frac{1}{100}$th of a grain of digitalin, the whole combination forming an obviously useful chalybeate tonic and cardiac stimulant. (2) The tabloid of butyl chloral hydrate and gelsemine represents a combination that is known to relieve acute neuralgia of the fifth nerve. Each tabloid contains three grains of butyl chloral hydrate and $\frac{1}{100}$th of a grain of gelsemine hydrochloride. The combination, of course, contains powerful drugs which need to be administered with particular caution.

PLASMON TEA.

(THE DIGESTIBLE TEA SYNDICATE LIMITED, 22, FENCHURCH-STREET, LONDON, E.C.)

Plasmon tea consists of a selected tea to which 10 per cent. of plasmon—the pure unaltered proteid of milk—has been added by an ingenious mechanical process. There can be little doubt of the dietetic advantages given to the tea by this proceeding. Part of the plasmon is calculated to render the tannin insoluble and inactive and part is dissolved in the beverage so that its nutritive value as well as its degree of digestibility are increased. Our analysis shows that this is the case. On estimating the amount of tannin contained in a five minutes' infusion of ordinary tea it was found to be 5 per cent. In an infusion prepared in exactly the same way but with plasmon tea the active tannin found was 2·85 per cent., so that the addition of plasmon reduces the tannin of tea by about 50 per cent. It is probable that even the tannin remaining in solution is physiologically inert and without action upon the digestive processes as it would appear to be in a neutral state combined with the proteid. The addition of more than 10 per cent. of plasmon to the tea, moreover, does not appear to remove more tannin, for the infusion contains a slight excess of plasmon, as is shown by the facts that sulphate of copper gives a decided precipitate of proteid as does hydrochloric acid also. The infusion of plasmon tea is opalescent and has a very soft and agreeable flavour recalling that of the delicate China teas. In other respects the results of analysis were normal, as, for instance, as regards the amount of caffeine and mineral matter. The nitrogen in plasmon tea-leaf (dry), however, was found to be 1·876 per cent. in excess of that of ordinary tea. This nitrogen represents approximately the amount of plasmon added. On account of this addition of plasmon there is little risk of "overdrawing" the tea and obtaining a physiologically bad infusion, whilst there remain intact the refreshing and stimulating qualities for which tea is widely appreciated. By this method the objectionable astringency of tea is removed.

ELISABETH IRON WATER (ZAANDAM, HOLLAND).

(THE ELISABETH IRON WATER AND IMPERIAL NATURAL TABLE WATER ADMINISTRATION, 9 AND 10, SOUTHAMPTON-STREET, HIGH HOLBORN, LONDON, E.C.)

The Elisabeth spring is situated at Zaandam, Holland. The samples which we examined in bottle were well charged with carbonic acid gas. The water is perfectly clear and bright and is of a yellowish-green colour. On boiling until all the gas was driven out the water still remained bright; we therefore conclude that it is free from earthy or metallic carbonates. The taste is decidedly inky and somewhat acid. According to our analysis the water yields a residue equal to 9·064 grammes per litre. These consisted of 6·290 grammes of chloride of sodium, 1·600 grammes of chloride of magnesium, 1·122 grammes of chloride of calcium, and 0·052 gramme of ferric oxide (Fe_2O_3) We do not agree with the published analysis which is to the effect that at any rate in the bottled aerated water the iron exists as bicarbonate. We rather maintain that it is present as protochloride with traces of perchloride. The water is no doubt a useful hæmatinic in certain cases and the association of salts such as the chlorides of magnesium, sodium, and calcium is valuable. The water is slightly aperient; it has been used with favourable results in the treatment of chlorosis and anæmia and in other conditions in which iron is indicated.

"LA NU" BISCUIT.

(JOHN M. MITCHELL AND CO., 33, HOPE-STREET, GLASGOW.)

"La nu" is a very palatable biscuit which shows on analysis good nutritive value. By the process of its manufacture part of the carbohydrates has been reduced to the soluble state. Thus slightly over one fifth part of the biscuit was found to be soluble in cold water. The total proteid amounted to 18·32 per cent. The biscuit is of good flavour and is crisp and uniform in texture.

BANANINE FLOUR AND BREAD.

(W. ALFRED JONES AND CO., MAY BUILDINGS, 51, NORTH JOHN-STREET, AND J. APPLEBY AND SONS, LIVERPOOL.)

There can be no doubt of the nutritious character of banana flour and the starch in it is peculiarly easy of solution and digestion in the alkaline digestive juices of the body. Banana flour is readily dissolved, for example, by the saliva. Our analysis of bananine gave the following results: moisture, 14·60 per cent.; mineral matter, 2·20 per cent.; proteid, 19·22 per cent.; fat, 2·00 per cent.; and carbohydrate, 61·98 per cent. The flour has the peculiar flavour and odour of fresh banana fruit. We have received also a sample loaf made with bananine flour. The flour proves to make a very acceptable loaf, uniform in texture and permanently moist and of a golden colour. Contrary to that which has been stated banana flour is much richer in proteid than is wheat flour and it also contains more fatty matter. Accordingly its nutritive value is decidedly higher than is that of wheat flour.

THE LANCET.

LONDON: SATURDAY, OCTOBER 17, 1903.

King's College Hospital.

AT a special court of the governors of King's College Hospital held on Monday last (an account of which will be found at p. 1110 of our present issue) the removal of that institution to a site in South London was approved and formal motions were passed to enable the council of King's College and the committee of management of the hospital to acquire a suitable and adequate site and to apply to Parliament for an Act to confer the necessary powers to effect the proposed removal. In passing these resolutions the governors are supporting the unanimous recommendation of the medical staff which had previously been submitted to prolonged and anxious consideration by the council of the College, by the committee of management of the hospital, and by a special committee of influential men appointed to investigate the advisability of removing the hospital.

The most sanguine supporters of such an important change must have expected some degree of opposition. This was but natural, since in every hospital there are hallowed associations which cannot be transplanted; beds, wards, and operating theatres bear names intended to commemorate former benefactors and former workers whose labours have contributed so largely to the relief of suffering humanity and to the advancement of medical science. The names of the various wards—Todd, Cheere, Twining, Wigram, Craven, Sambrooke, Fergusson, and Johnson—amongst King's College men evoke memories of familiar forms and though it is doubtless intended to retain these names in the new hospital they will seem less real when remote from the scenes of their work. These sentimental considerations, together with a spirit of conservatism, have perhaps weighed much with the members of the committee of the hospital who resigned when it became evident that their opposition to the scheme of removal was clearly out of harmony with the wishes of a large majority.

On the other hand, the reasons for urging the removal appear to be of overwhelming force. Dr. BUZZARD, in a conciliatory speech, briefly enumerated the chief arguments, referring frequently to a more detailed document addressed to the governors and signed by numerous members of the council and of the committee of management of the hospital. It is evident that although the hospital was originally admirably planned to supply the needs of a crowded district and to afford adequate training for medical students, it has for many years past inevitably fallen behind modern requirements. Sufficient space was originally devoted to medical, surgical, and obstetric cases, and as planned the hospital was light, cheerful, and well ventilated in all parts. In time, however, numerous special departments were created and for their proper development these required some ward space as well as properly lighted out-patient rooms. Frequent efforts were made to improve the accommodation and by re-arrangement to provide for these new departments, but the result has been to produce overcrowding and consequent inconvenience in the working of almost every department. The structural alterations could not be effected satisfactorily without remodelling or rebuilding a large part of the hospital. For a long time the authorities have felt that it was imperative to construct new out-patient rooms, new quarters for the resident officers, and new wards for the special departments. Upon the ground belonging to the hospital it has been found impossible to achieve all these objects even if funds could have been collected for this purpose.

Meanwhile, although within the hospital there have been continual growth and activity, the local need of the institution has been steadily diminishing owing to alterations in its surroundings. The building of the Law Courts and more recently the Strand improvements have cleared and depopulated large areas which formerly supplied numerous casualties to this hospital, to St. Bartholomew's, and to Charing Cross. The distribution of the hospitals in London has long attracted the attention of those engaged in the allotment of the various charitable funds. The opinion has often been expressed that while some districts are too richly supplied with facilities for obtaining gratuitous medical and surgical treatment, there are wide areas densely populated with poor people who have to travel some miles before they can obtain relief. In hospital management it is a truism that large numbers of patients invariably come from great distances to attend the out-patient departments; that there is a process of selection or exclusion which cannot be prevented and can hardly be explained. In hospitals, as in private work, certain individuals or certain departments have a reputation for skill and kindliness that serves as an attraction which outbalances distance or difficulty of access and in this way, although through depopulation the supply of casualties may be greatly reduced, some special departments may become inconveniently crowded. Those concerned with the distribution of charitable funds look, however, to an ideal distribution of the hospitals in the immediate neighbourhood of the greatest congestion, of the greatest distress, and from this standpoint it is obvious that the Strand and Fleet-street are too well supplied while South London languishes. Meanwhile it is on all hands admitted that ground in central London is so valuable that lavish expenditure must be made by any hospital attempting to put its house in order on modern lines. The rent of a requisite area would absorb too large a proportion of the income of any hospital in which it was desired to centre the best clinical teaching in every department and it must be remembered that the best teaching leads to the most efficient work of a hospital.

The present position of King's College Hospital in central London possesses numerous advantages which cannot be lightly overlooked. It is of easy access from all suburbs, so that students may be drawn to it through almost any of the channels linking town and country. It is close to the College, it is close to the Royal College of Surgeons of England and to the Examination Hall It is so near to the medical district that daily visits offer no great difficulties to members of the staff. All these advantages

are, however, being put aside in the desire to move with the times, to transplant the hospital to a site where it is more urgently needed and where it will be possible to construct a hospital replete with every modern device for the general and special treatment of the sick. The initial outlay involved must necessarily be very great but it is to be hoped that the self-denial and public-spiritedness of the staff in making this great step in obedience to the needs of South London will receive that financial support which will enable the scheme to be carried into effect at a very early date.

The Children's Committee of the Metropolitan Asylums Board.

A DEPARTMENTAL committee of the Local Government Board was appointed in 1894 to consider the whole question of the treatment of children under the care and jurisdiction of the Poor-law and its report strongly recommended the formation of a central authority with the duty of making special provision for these children within the metropolitan area. This was the origin of the children's committee of the Metropolitan Asylums Board which was constituted in 1897 and which has recently issued its fifth annual report. The committee receives from the guardians the following classes of children: those suffering from ophthalmia, ringworm, and tuberculosis, those requiring treatment in country homes, and those children who, being mentally or physically defective, are cared for in homes in London. Homes have been opened by the committee for the reception of children under magisterial remand who, it will be remembered, were formerly, and most unfortunately, sent to the workhouse. The groups of children thus indicated, some with bodily illness and others with mental or moral deficiency, have to be cared for and educated by the State, and the report of the children's committee shows the machinery employed and the result. The sick children appear to us to be excellently treated, while the cases of psychological interest at any rate command every care. But very great skill and scientific experience should be brought to bear upon the betterment of these unfortunates.

The varied phases of educational work demanded by the conditions and special needs of mentally defective children call for much labour and special knowledge on the part of the committee, and it is impossible for us not to recognise that the *personnel* of the committee includes few among its members who are prominent in the medical and scientific world for their first-hand acquaintance with modern methods of training as adapted to the necessary end. This might, we think, be set right. The Local Government Board has the power to nominate a certain number of representatives to the Metropolitan Asylums Board in addition to the members sent by the boards of guardians, and it would be well if opportunity were made to add to the children's committee some educational authorities with the necessary knowledge and training who might assist in the discharge of the difficult and important duties which are continually extending as new social problems have to be solved in the public interest. We observe that boards of guardians do not make all the use that they might of the accommodation provided by the Metropolitan Asylums Board for mentally defective children, a condition of affairs which would probably be remedied if the children's committee were reinforced by one or two members who would be universally regarded as experts. It must be remembered that efforts for the improvement of children who are feeble-minded and physically defective necessitate the services of a more highly trained staff than may be required in cases of sickness. The children are collected from the metropolitan Poor-law schools and boarded in small homes in London under the care of a matron, so that they may attend "special classes" in the neighbouring board schools. It would probably prove more advantageous to the children, for whom town life is not desirable, if the children's committee saw its way to provide suitable homes for them out of London and a more complete educational scheme to be carried out under its own direction. Were this plan followed we should have more hope of its success in dealing with these cases after the age of 16 years; the methods of training might be continuous, each stage being planned to impart ability for future work in industrial life.

The kind of expert knowledge which, in our opinion, the children's committee somewhat lacks is in the matter of psychological training for the children who are mentally defective: those physically ill appear to be well cared for. As to the latter cases Dr. T. COLCOTT FOX, for example, gives a most encouraging account of the treatment of the children under his supervision who are suffering from ringworm. The average period of treatment required to effect a cure of the children so affected was about nine months. Dr. FOX has carefully tabulated 317 cases in his report arranged in two groups, cases of microsporon and cases of trichophyton. The former cases constitute something like 90 per cent. of the cases met with at the hospitals in the metropolis, but in the board schools it is to be noted that some 40 per cent. suffer from what has been considered a much rarer disease in London—viz., trichophyton. These latter cases came mostly from Hackney, Southwark, and Poplar. The conclusion that Dr. FOX draws is that the trichophyton may go unobserved for a long time and form centres of contagion especially apt to spread in institutions where children are collected. We instance Dr. FOX's report as an example of the kind of systematised knowledge that we should like to see infused into the treatment of the children who are mentally defective. The children's committee ought to be in a position to deal with analogous reports from psychological experts, but we find in its own report only slight indications of any effort to improve the ill-developed brains of the children under its care on any definite plan. The mere fact of a child being ignorant, dull, or stupid does not prove that he is feeble-minded; physical signs seen in defective action should be carefully noted and pointed out to the teachers as special objects for their attention. There appears to be a general idea among educational authorities that weak-minded children should have only short periods of teaching during the day, but the experience of those who are conversant with their care is that active control of these children by trained teachers throughout the day is most valuable to effect a healthy growth and to implant good methods of action. Whatever

plans may be adopted in the future for the care of feeble-minded children the need of skilled teachers specially trained for these duties must be obvious.

Quackery.

ON Oct. 13th at Bow-street police-court a man named LEWIS LAMB BAILLES pleaded guilty to two summonses taken out by the Medical Defence Union, one of which charged him with using the title or description "Doctor," implying that he was registered under the Medical Acts, while the other alleged that he unlawfully, wilfully, and falsely assumed the title or description "M.B." Under the first summons the defendant was ordered to pay a fine of £20 and £21 costs or to go to prison for two months. Under the second summons a fine of £5 was imposed with the alternative of 21 days' imprisonment. The facts disclosed in the statement made by Mr. BODKIN, who appeared for the prosecution, were such as amply to justify the infliction of severe penalties and should be to some extent a warning to credulous members of the public who allow themselves to be attracted by the specious advertisements of the quack.

BAILLES, it appears, was at one time on the Medical Register with the qualifications of Bachelor of Surgery and Bachelor of Medicine of the University of Durham. He was, however, in 1894 convicted of rape and sentenced to five years' penal servitude and as the result of this conviction his name was ordered by the General Medical Council to be removed from the Register and the University of Durham deprived him of his degrees. Since his liberation from penal servitude BAILLES is said to have at one time inserted advertisements in the newspapers describing himself as having the degree of M.B., but no proceedings were taken against him. At some more recent date, however, fixed by his own admission at a little more than 12 months ago, he entered the service of an American quack trading as "The Dr. McLaughlin Company" and carrying on business in England at, among other places, 164, Strand, London. The advertisements of MCLAUGHLIN must have been observed by many of our readers as well as by the general public. In some of these a statement is made to the effect that persons desiring "Electro Vigour" treatment will be under the care of a properly qualified person, and in consequence of this clerks sent by the solicitors of the Medical Defence Union visited 164, Strand, consulted BAILLES, and received from his own lips representations as to his qualifications which indorsed those made on his behalf in the advertisements. With regard to him personally we have little or nothing to say. He is no longer a member of the medical profession, having been convicted of a crime which of all others rendered him wholly unfit to practise it. Other avenues of industry are open to him and in one of these it would be wiser for him to endeavour to expiate his past and to earn an honest livelihood than to do as he has been doing. The general public, however, are liable to be soothed into security by the quack's promise of advice given gratis by a "qualified practitioner" in his employ and it should be pointed out to them that members of the medical profession who value their independence and their good name or who have a good name to lose do not hire themselves out as jackals to the advertisers of quack "remedies" for disease. Although the patients who offer themselves as victims to traders of the MCLAUGHLIN class may not fall into the hands of persons who have been convicted of felony, they will necessarily find in those who profess to treat them either men without training or qualification or men whose names should have no place upon the Medical Register, and in any case persons in the pay of unscrupulous rogues, bound by the terms of their service to push the sale of fraudulent goods to the profit of their employers.

At the hearing of the recent summonses at Bow-street police-court Mr. BODKIN said of the literature circulated by the McLaughlin Company which was in his hands that "if it were sent open through the post it would be suppressed" and that "the illustrations it contained certainly ought not to appear except in a medical work under proper supervision." No reasonable man who has ever seen any of these documents will dissent from the opinion expressed by one of the most experienced counsel practising in the criminal courts, except in so far as it suggests that the absurdities of the McLaughlin literature might find themselves reproduced in medical works. We have before us two books or pamphlets both emanating from "The Dr. McLaughlin Company" and both advocating the merits of "Electro Vigour" and the sale of the apparatus by which "Electro Vigour" is to be imparted. The illustrations, in addition to views of the McLaughlin Company's places of business, consist of pictures of men and women clothed in little or nothing but so-called electric belts and of diagrams of the belts themselves. An endeavour is made to render these pictures attractive and convincing by zigzag lines apparently representing flashes of electric sparks emanating from the belts and playing over the figures of those who wear them. Illustrations of belts for men with electric flashes radiating from suspensory attachments are evidently intended to bring home to the would-be purchaser that his sexual powers will be increased by an appliance which sets an electric current moving round his genital organs. It is to the class of persons who are ever ready to fall into the hands of the quack owing to some real or imaginary sexual weakness that the McLaughlin literature is principally addressed. Such lines as the following are specially printed in red ink in one of the pamphlets: "Second Stage of Seminal Weakness," "A Strong Appliance Cures in Three Months," "Electricity is Grand for Impotent Men." In the text we find the following passage: "Excessive indulgence in sexual intercourse has so far exhausted the power of the veins whose duty it is to throw the blood into the seminal vesicles that no response is given to the mental excitement. This is the most aggravating form of weakness—when the desire is strong in the mind but the parts do not respond. The negative current of our Electro Vigour is directed to them in those cases." While we congratulate the Medical Defence Union on its successful prosecution of an individual we cannot forget that he was merely an agent incidentally guilty of a legal offence, the trade of whose principal is not checked by the conviction obtained. We observe that before he passed sentence the magistrate

desired to be informed whether anyone had been injured by the use of the "Electro Vigour" appliances. He was told that they were absolutely ineffectual for good or evil and appears to have taken this as a mitigating circumstance. It does not appear to have struck him that the sale of goods by means of statements as to their uses which are not justified by fact may involve the obtaining of money by false pretences. It seems likely that from this point of view the trade of quack medicine vendors may often be assailable where no infringement of the Medical Acts takes place, although convictions in the circumstances might not easily be obtained. In conclusion we cannot too strongly point out to those of our lay contemporaries who publish the advertisements of "The Dr. McLaughlin Company" and other such wicked enterprises that money thus obtained is dirty, filthy money, the taking of which in the long run will react unfavourably on their reputation and usefulness.

Annotations.

"Ne quid nimis."

THE USE OF THE RED TICKET IN IRELAND.

ALTHOUGH we have from time to time to call attention in THE LANCET to the treatment which is accorded to district medical officers in Ireland by boards of guardians which fail to appreciate at their just value the work of these devoted public servants, it is but rarely that we are able to record that the defaulting guardians have had to make amends for their misdeeds before a tribunal of the law. As a rule it is an expensive and uncertain process to invoke the aid of the law and, moreover it is, generally speaking, not in the interests of a medical practitioner to enter the law courts as a plaintiff. But on this occasion we are very glad to be able to chronicle the fact that Mr. E. F. Stephenson, who is medical officer of the Woodstown dispensary district near Waterford, has succeeded in obtaining judgment against the Waterford board of guardians for payment of his claim, as also costs on the higher scale. Unfortunately, the account of the proceedings which has reached us is not as complete as we could wish but generally the salient features appear to be somewhat as follows. A vessel came into Waterford harbour from Rosario in South America and on arrival in the harbour a member of the crew was found to be suffering from small-pox. The case was duly reported to the Waterford corporation but it does not seem that that body was prepared to deal with it. However this may be, the medical officer of health apparently decided to have the patient entered as an inmate of the Waterford union workhouse and he was then sent to the isolation hospital which is situated in Mr. Stephenson's district, the medical officer of health notifying to him that the case had been sent to that institution. Mr. Stephenson thereupon visited the patient but on discovering that it was a ship-borne case suffering from small-pox he wrote to the master of the Waterford union stating the facts and asking to be informed immediately if provision had been made for medical attendance on the case. To this the master replied by wire: "Got no orders. Use your own discretion." In these circumstances Mr. Stephenson, interpreting discretion by the light of the humanity common to all medical men, visited the case, naturally expecting that the guardians would pay him for his attendance, more particularly as the clerk had previously telegraphed to him asking from what disease the patient was suffering. Subsequently Mr. Stephenson, after having treated the case for several days, wrote to the guardians asking to have his position defined, but as a result of this correspondence, in which Mr. Stephenson naturally claimed payment, he was served with a red (urgency) ticket to attend the patient, the guardians expecting by this means to relieve themselves of all responsibility as to payment. Other cases of small-pox were also sent to the hospital but these were, it appears, attended by the port medical officer of health. His honour, the judge, in delivering judgment held, we are glad to be able to record, that "the guardians from the first assumed responsibility for the case and then thought to protect themselves by throwing a red ticket at the medical officer's head." It is clear that in this case a very important principle has been at stake. Had the verdict gone against Mr. Stephenson it would have implied that a port sanitary authority might send all its ship-borne cases into the adjoining union, make them paupers, and have them treated as a matter of routine by the district medical officer. This would certainly be a convenient method by which both the shipping authorities and the port sanitary authorities could relieve themselves of their moral and statutory duties. But fortunately there are limitations to the irregular use of the red ticket and we cordially congratulate Mr. Stephenson upon his success.

SUBSTITUTION RAMPANT.

AGAIN and again in our columns we have written in strong terms in regard to the increasing practice of fraudulent substitution which would seem to respect no trade; the practice is universal and every word we have written is justified by daily events. We appeal once more for a system of strenuous control over this pernicious practice. Much of that which we eat, drink, or even wear is not what it professes to be and it seems to us that the public are for all practical purposes unprotected. Need further examples be quoted than the following which we have often quoted before? A mixture of linen and cotton is sold as pure linen, a mixture of wool and cotton is sold as all wool, a mixture of silk and cotton is sold as pure silk, goods bought as pure silk are heavily loaded with mineral matter to give a spurious impression of heaviness, grain spirit is sold as grape spirit or genuine brandy, the same spirit is sold as malt spirit or whisky, Indian tea is passed off as China tea, "plantation" coffee is sold as real Mocha, and cotton-seed oil is palmed off as genuine olive oil. Again, in jam and marmalade glucose is substituted for cane sugar and glucose is also used in place of malt for making beer. The latest addition to this infamous list is the use of cardboard wickedly sandwiched between the leather of the soles of boots offered for sale and guaranteed as "solid." A "solid" boot in the trade means an all-leather boot. The very necessity of the term implies fraud, as does all-malt in the whisky trade. And there are those in the boot and shoe trade, judging from the proceedings in a recent case, who would hold that boots with "insoles" of cardboard and brown paper might correctly be described as "solid" boots. We are glad that Judge Emden, before whom the case (a civil action be it remarked) was brought, thought differently and decided in favour of the plaintiff who sought to recover damages from the defendant for fraudulent misrepresentation in regard to the sale of boots. We have had the opportunity of inspecting a specimen of the kind of boot which was supplied in answer to the description of "solid." On ripping up the outer sole the fraud is at once brought to view in the shape of strips of cardboard inserted between the outer and upper soles. So far no other means seems to be available for laying bare the deception and it is monstrous that such a wicked fraud cannot be dealt with as a false description under the Merchandise Marks Act. A hall-mark is wanted, so to speak, which

shall guarantee a "solid" boot and any misuse of the mark should be met with the severest penalty. Anything more brazen than calling a boot solid when by reason of its cardboard stuffing it would fall to pieces in wet weather is hard to imagine. The case of calling a piece of silk "fine heavy silk" which is heavily loaded with mineral matter of a probably injurious kind is not one whit better. A few days ago we had occasion to examine a piece of silk that formed the sleeve of a blouse which set up an acute irritation of the skin. Analysis disclosed that the material was loaded with no less than 40 per cent. of mineral matter consisting, as further examination showed, of the oxides of aluminium and tin, with distinct traces of arsenic. Thus nearly half of the weightiness of this "silk" was due to metallic oxides. Is it wonderful that such a material worn next the skin should set up irritation? When is the scandal of substitution—which is but a mild word for fraud—in such cases as we have quoted going to be adequately checked by the State? At present the evil is growing apace; discussion about it soon subsides and nothing is done. If it be true that English trade is going to the dogs we think that we can find at least one reason for this decline. To be candid, there is far too much dishonesty about it.

REPORT OF THE GOVERNMENT BACTERIOLOGIST OF HONG-KONG FOR THE YEAR 1902.

JUST at present it is the fashion to seek both commercial and scientific salvation in the methods of every country but our own and to echo the cry, Can any good thing come out of England? It is not easy to trace the grounds for this pessimism in the face of such a report as that now under consideration, containing as it does a record of much sound scientific work and valuable additions made to our knowledge of practical hygiene and sanitation. That similar good work comes from all parts of the empire the article by Dr. J. Ashburton Thompson, the chief medical officer of the Government of New South Wales, which appears in the current issue of THE LANCET, gives proof. Perhaps in England there is an inherent tendency to belittle ourselves and to believe what others say in their own praise, but one cause of the prevailing gloomy view seems to be ignorance of the good work done, an ignorance due in many cases to the conservative traditions of many Government departments which leads to the hiding, sometimes to the extinction, of their lights under a bushel. In the Colonial office, however, at any rate this tradition should be a thing of the past. In addition to the ordinary bacteriological investigations the care and management of the public mortuary and of the Government Vaccine Institute are included in the duties of the Government bacteriologist of Hong Kong. In the public mortuary no fewer than 2816 bodies were examined in the year and Dr. W. Hunter, the bacteriologist, remarks that no institution, given suitable accommodation, apparatus, and assistance, would afford greater scope for pathological and bacteriological research. Though apparently without suitable accommodation and hampered by the loss by shipwreck of the whole of his original outfit of bacteriological apparatus Dr. Hunter has shown that this is true. Plague investigations formed, of course, a most important part of the work and between 2000 and 3000 rats were examined weekly. A most valuable series of experiments was undertaken in conjunction with Dr. W. J. R. Simpson and forms part of his report to the Colonial Office on the Causes and Continuance of Plague in Hong-Kong. By these experiments it was definitely shown that human plague was communicable to a large number of domestic animals and birds, such as calves, pigs, hens, and ducks, and that, further, the disease from which these animals suffered was infectious. The facility with which infection was secured by feeding is also a most important point and one not in accord with some previous work. The chronic character which the disease assumed in some of the animals would serve to explain certain peculiarities noticed in the epidemic spread of plague. Direct infection of man by food can, however, hardly be regarded as frequent and the work of Dr. Thompson goes far to show that the hypothesis of Simond that the parasites of the rat play an important part in the spread of plague is highly probable if not completely proved. As had been noticed at Capetown cats were shown to be susceptible. An epidemic of cholera gave opportunity for the important observation that in the many cases of pregnant women dying from the disease no cholera-producing organism was found in the fœtus. Investigations of certain epidemic cattle diseases and the preparation of Haffkine's vaccine and curative plague serum were also undertaken but the latter had to be given up owing to lack of suitable accommodation. The value of such a year's work is self-evident and it is to be hoped that the authorities will provide such further facilities as are required to make future work still more important.

IS IT NECESSARY TO FEEL WHETHER THE CORD IS ROUND THE CHILD'S NECK AFTER THE BIRTH OF THE HEAD?

IN almost every text-book of midwifery, whether written for the use of students or midwives, the attendant is recommended in a case of normal labour after the birth of the head to feel whether or not the cord is placed round the child's neck. If it be found in this abnormal position then he is told to slip it over the child's head or over the shoulders, or if these two manœuvres be found impracticable to divide it between two ligatures. In the *Centralblatt für Gynäkologie* of Sept. 19th is a very interesting article by Professor Schultze in which he throws grave doubts upon the correctness of this teaching. As he points out, the dangers of such a position of the cord are threefold. There is, first, the danger of the pressure of the cord upon the vessels of the neck, producing stoppage of the circulation through the child's brain; secondly, the danger of the pressure to which the cord is in its turn subjected by the neck arresting the circulation through the former; and lastly, the danger of the cord being compressed between the neck of the child and the anterior wall of the pelvis towards the end of the second stage of labour. Naegele was the first writer to call special attention to the last of these dangers. Veit has recorded 2250 cases of vertex presentation, in 442 of which the cord was round the child's neck. Amongst these latter the fœtal mortality was 1 in 61, and the number of children born asphyxiated was 1 in 7. In the cases in which the cord was not round the neck the corresponding numbers were 1 in 92 and 1 in 25. If, however, we consider the figures for primiparæ and multiparæ separately we find that amongst the former when the cord was round the neck the number of children born asphyxiated was three and a half times as great as when it was not and the mortality was almost twice as great, whilst amongst the latter there were no deaths, although the number of cases of asphyxia that occurred was four times as great as in cases of normal labour. Since the conditions as regards the pressure of the cord on the vessels of the neck and the pressure of the neck in its turn on the vessels of the cord would be the same in the two series of cases these figures tend to show that the main danger of this abnormality is almost entirely due to the compression of the cord between the neck of the child and the anterior pelvic wall. It is obvious that the chances of such compression occurring to a dangerous degree are considerably greater in the case of the prolonged second stage in primiparæ than in

the relatively short second stage that occurs in the majority of multiparæ. Professor Schultze points out that as soon as the child's head is born any such danger disappears, since it is no longer possible for the cord to be compressed in this manner. In any cases, however, where after the birth of the head there are present signs of impending asphyxia of the child or of danger to his life we must proceed at once to hasten the delivery of the shoulders quite irrespectively of the position of the cord. In these circumstances, therefore, the fact that the cord is round the neck is not the ground upon which we interfere. The coiling of the cord round the neck of the child at the time the head is born does not then of necessity furnish any indication for interference and the routine practice of introducing the fingers into the orifice of the vagina at this stage of labour is not without danger. Abrasions and tears of the mucous membrane are present in many instances and the danger of septic infection is the greater in that the hand most commonly employed for this purpose will be the right one which has been guarding the perineum and is very likely, therefore, to be soiled with fæcal matter. For these reasons we may well question with Professor Schultze whether the current teaching as to the dangers of this complication and the necessity for its immediate correction does not stand in need of revision.

CULPABLE OVERLYING.

IN a paper contributed to the *British Journal of Inebriety* Dr. W. Wynn Westcott discusses the subject of intemperance among women in its relation to the overlying of infants. The statistics quoted by him in this connexion are sufficiently instructive to make the most casual reader feel not a little uneasy. He informs us that during the last ten years no fewer than 15,009 infants have thus been killed by suffocation in England and Wales and that the yearly average of such deaths in London is 600 and in Liverpool 150. He further states his impression that a considerable number of cases which ought to be classed in the same category escape detection under the euphemism of "convulsions." We are also assured that deaths from overlying are exceptional on the continent and that in many German towns they are unknown. This immunity is not attributable solely to the comparative rarity of drunkenness among French and German women; it is also explained by the far more prevalent use of children's cradles in those countries than in this. In view of such facts as these it seems almost incredible that effective measures have not already been employed to bring home to the poorest class of our towns, among whom the overlying evil is usually met with, the absolute necessity of providing proper sleeping places for their infant children. There is no question of expense. An open box or basket can be utilised as a child's bed. The poor in country districts in this country use cradles. Dr. Wynn Westcott states that in the event of a verdict of manslaughter being obtained in a coroner's court when a child has been overlain it will not be confirmed in the criminal court without formal evidence of culpable neglect which, as a rule, is obviously impossible in existing circumstances. We are thus at a deadlock and it appears as if we are invited in legal terms to fold our hands in the presence of a cruel and avoidable social offence from which our continental neighbours by the exercise of a little ordinary care, assisted also by a certain humane rigour of authority, have kept themselves practically free. Intemperance is doubtless a contributory cause of overlying. We have never known it to be classed as an extenuating condition. The omission to provide suitable separate bedding for an infant is certainly neglect of a dangerous kind and being avoidable, even easily avoidable, it is certainly culpable. In what way it may best be punished we will not pretend to decide, but until it is penalised there seems but little prospect that overlying will cease to claim a still increasing number of victims.

THE RÔLE OF SOAP.

WHILST the suggestion made by a correspondent writing from Cape Colony in the *Times* of Oct. 13th that the liberal use of soap is possibly connected with the falling off in physical strength of certain classes of the community of England may on the face of it appear chimerical, yet it is difficult not to admit that the continued application of soap to the skin must rob it constantly of its natural oil. On this account soap is not calculated to make the skin supple or "velvety," a quality which is impossible without oil. Since soap removes oil it would seem perfectly correct to suggest that if soap must be used the skin should be immediately afterwards anointed with oil. Those who possess delicate complexions and who find even the best soap detrimental to the skin gain relief by the application of a soothing fat such as cold cream. The correspondent referred to writes: "The Almighty has given us a natural oil on the body to protect our skins and man gives us stuff to remove it and so expose the body to rheumatism, chills, and diseases of all kinds. Soap opens the pores of the skin, disease and dirt get in, and the body gets inoculated with any vile matter flying about." This view would be all very well if it were not for the tenacity of dirt, and this tenacity depends either upon the grease of the dirt itself or upon the natural oil of the skin. Such dirt would be hard to remove without the use of soap—plain water would never detach some kinds of dirt—and in civilised communities or in crowded cities soap thus becomes absolutely a modern necessity. In localities where grime is a rare constituent of the environment, as at sea or in the open country, the need for continual lavage with soap is not so great. There are not a few people who manage to maintain personal cleanliness without the use of soap, for there are many detergent agents besides soap, of which oil may be mentioned as the chief. But on the whole intemperance in the use of soap is not a universal habit even in civilised countries, and abstinence may answer very well on the veldt or in places far from the factory and chimney. We are convinced that soap is a really sanitary adjunct which has raised rather than lowered the standard of public health. That in isolated cases it may be used to excess we admit, but the standard of purity of soap in this country is very high and such as is calculated to prevent any injurious effects which might otherwise arise.

THE RANGOON LYING-IN HOSPITAL.

WE have received a letter from Dr. T. F. Pedley of Rangoon in which he asks our opinion upon a matter of considerable interest to all those who have the charge of small hospitals in this country or in the colonies. It appears that in the year 1887 a lying-in hospital with a training school for midwives was opened in Rangoon. This hospital contained 15 beds for obstetric cases and three beds for gynæcological cases. The honorary medical staff consisted of the three senior non-official medical men practising in Rangoon and the junior civil surgeon, the senior civil surgeon acting as consulting physician. For some 15 years this institution seems to have done good work and during this time the Burma branch of the Countess of Dufferin's Fund managed to raise enough money to build a new hospital. Since the completion of the new building, and apparently by the orders of the then Lieutenant-Governor, it has been turned into a general hospital into which all classes of cases are admitted and has been placed under the charge of the chief civil medical officer of the province and the two civil surgeons, the latter gentlemen being already in exclusive charge of the Rangoon

General Hospital of some 460 beds. The cost of the new building, amounting to Rs. 109,000, was almost entirely defrayed by public subscriptions, the Government contributing only Rs 10,000. It is difficult for us to judge of the rights or wrongs of what at first sight seems to be a very high-handed procedure on the part of the local officials. It is, however, quite permissible for us to express the opinion that the work of the hospital can hardly be very efficiently performed by three medical men, two of whom are already in charge of a hospital of 460 beds. The question put to us by Dr. Pedley is the very important one as to whether a hospital into which lying-in cases are admitted should be used for the treatment of general cases, both medical and surgical. We say most emphatically that it should not be so used. The whole experience of those in charge of modern lying-in hospitals tends to show that they should be employed for that purpose and for no other. In this way alone can the practice of antiseptic and aseptic midwifery properly be carried out and the inmates adequately guarded against the dangers of septic infection. The transformation of this hospital intended for the reception of some 30 lying-in patients into a general hospital seems to have been initiated against the advice of the majority of the members of the medical staff, who were expelled from their honorary appointments by the orders of the Lieutenant-Governor. We presume that this gentleman did not act without some medical advice upon so purely professional a matter. His advisers, whoever they were, have incurred a very grave responsibility in running counter to the opinion of every obstetrician of note in this country or on the continent. We gather from Dr. Pedley's letter that in all probability the hospital will by the orders of the new Governor be handed over again to the local committee. We hope that this may be so and we trust that when this change is made it will be restored to the purpose for which it was built. In this way alone can the best interests of the institution and of its inmates be served and the danger as far as possible avoided of the occurrence of cases of septic infection—an occurrence which in the existing circumstances would be little less than a public scandal.

THE VALUE OF TETANUS ANTITOXIN.

THE exact value of tetanus antitoxin is even now still *sub judice*. That it is able to neutralise the toxin if injected before or soon after the injection of the toxin has been conclusively shown in animals. In man, however, where the experimental method of investigation is inapplicable, the only cases in which we can observe the action of the antitoxin are those in which the disease has already developed. From the knowledge we possess of the pathology of tetanus we can be quite sure that by the time symptoms of spasm become first manifest the disease has progressed so far that the antitoxin is not capable of exhibiting all its curative power. There is still much that is obscure in the pathology of tetanus but we know that the phenomena of the disease are produced not by the direct action of the specific bacillus but by the toxin to which this bacillus gives rise. The bacillus is confined to the wound and the toxin alone is absorbed. After absorption into the blood stream it is carried to the central nervous system and there the greater part of the toxin enters the nerve cells and forms a very stable compound with the cell substance. When the antitoxin is introduced it can neutralise any "floating" toxin which is still in the circulation but it is unable to break down the very firm union between the toxin and the cells of the central nervous system. Therefore it is clear that as soon as any spasms appear the time has gone by for the most valuable action of the antitoxin, for the action of the toxin on the nerve cells has already commenced. It is true that the antitoxin can still render innocuous that portion of the toxin which is unfixed and any further amount of toxin which may subsequently be absorbed, but the effect already produced on the nervous system may have been sufficient to lead to a fatal issue. Without the employment of the antitoxin recovery ensues in a certain proportion of cases of tetanus, especially when the incubation period is long, that is, over 12 or 14 days. When a large quantity of the toxin has been absorbed the symptoms develop rapidly and even if the antitoxin be administered early it cannot exert its beneficial action, for a large amount of toxin has already attacked the cells of the central nervous system. Thus it comes to pass that the mortality of the cases in which the antitoxin is administered early is very high. Ullrich collected 41 cases in which the antitoxin was injected within 30 hours of the commencement of symptoms and the death-rate was over 72 per cent., while in 72 cases in which the antitoxin was injected between the second and fifth days the mortality was less than 46 per cent. In spite of these statistics there is good evidence that antitoxin is of distinct value in tetanus, especially if it be administered early, and in the present issue of THE LANCET we publish an account of a case under the care of Dr. J. W. Cook at the Bury Dispensary Hospital. In this case the antitoxin was injected and improvement appeared to follow and when the injections were omitted on one day a slight relapse occurred. We consider that the successful result was rendered more certain by the use of the antitoxin, though the patient might have recovered without it as it was not an acute case. The employment of the antitoxin, however, should not lead us to neglect the local treatment. The bacillus lives only in the wound where it forms toxins which are absorbed. To permit, therefore, the tetanus bacillus to continue its formation of toxin in the wound is to invite failure. The wound should be opened up and cleansed with the greatest care, all foreign bodies and necrosed tissue being removed and the wound being rendered aseptic. By thus cutting off the supply of toxin the surgeon is better able to deal with the quantity which has been already absorbed.

THE CLASSIFICATION OF PAUPERS.

THE holding of conferences is apt to be rather unproductive as regards practical results, mainly because any suggestion of value is lost in the sea of words which inundates it. Only too frequently have the meetings of guardians and Poor-law officials served to illustrate this statement but we trust an exception to the rule may be provided in the case of the delegates from the Lancashire and Cheshire unions who met lately at Blackpool under the presidency of Sir John T. Hibbert, K.C.B. Quite an unusual amount of common-sense seems to have been brought to bear upon the important matters of workhouse management and parental responsibility but a paper on the Combination and Classification of Workhouses by Mr. H. P. Cleaver, clerk to the West Derby Union, invited and received special attention. In advancing a plea for the improved classification of paupers Mr. Cleaver expressed the opinion that the difficulties met with in the treatment of pauperism could be dealt with to better purpose by some system of voluntary amalgamation and he suggested the formation of joint committees of boards of guardians to look, respectively, after vagrants, imbeciles, lunatics, and the other classes into which the indigent fall. It was decided to submit these views to a special conference convened for the purpose. If properly carried out the idea of separating the various groups of paupers by housing them in distinct buildings is an excellent one. Any virtue that lay in the proposal to transfer the administration of the Poor-law from boards of guardians to the county councils was dependent on the opportunities which would thus have been afforded of elaborating a scheme of classification. In

London the problem would be a fairly simple one, since by a combination of the various unions the existing buildings could be allotted to the different subdivisions which it might be found convenient to recognise. Improved classification is at any rate urgently demanded to overcome the numerous abuses to which the present system gives rise and if the members of the north-western conference can help to devise a workable arrangement they will earn the gratitude of the many who have the interests of the poor at heart.

SUDDEN RISE OF BLOOD PRESSURE AS AN EARLY SIGN OF PERFORATIVE PERITONITIS IN TYPHOID FEVER.

THE trend of surgery, as was recently shown in Mr. Donald Armour's paper,[1] is to treat intestinal perforation in typhoid fever by immediate operation. The dictum of Keen to wait until shock has passed off is being abandoned. Hence the great importance of early diagnosis of perforation. In the Boston *Medical and Surgical Journal* of Sept. 24th Dr. J. B. Briggs, resident house officer of the Johns Hopkins Hospital, at which so much work has been done to advance the surgery of typhoid perforation, has recorded some new observations showing that the blood pressure rises with the onset of perforative peritonitis before pain or other symptoms develop. Whether his conclusion that this rise is a trustworthy guide to early operation be borne out by wider experience or not his observations are a valuable contribution to pathology. In the past two years Dr. Briggs has frequently observed with the Riva-Rocci sphygmomanometer a sharp rise in the systolic blood pressure on mechanical stimulation of the peritoneum during laparotomy. Dr. Harvey Cushing suggested that a similar rise possibly occurred at the onset of perforation in typhoid fever from peritoneal irritation and might prove of value in early diagnosis. Dr. Briggs found that in acute peritonitis except when the patient is moribund the pulse tension is high. During the past year the pulse tension of the patients suffering from typhoid fever in the Johns Hopkins Hospital was closely observed. In two cases in which there were symptoms that led to laparotomy the observations of blood pressure are of great interest. In the first case a young man was admitted about the end of the second week of a severe attack. During the next ten days the abdomen was soft and natural and from 20 to 200 measurements of systolic blood pressure were made daily. The pressure ranged from 98 to 115 millimetres of mercury and tended to fall as the disease progressed. At 8 P.M. one night the pressure was 106 millimetres. At midnight it was 144, when there were no abdominal symptoms. At 4 A.M. the patient suddenly cried out with severe abdominal pain; his knees were drawn up, abdominal respiration was restricted, and there was great tenderness over the lower part of the right rectus muscle which was rigid. The symptoms rapidly developed, laparotomy was performed five hours later, and two perforations were found in the ileum. There was rapidly spreading peritonitis and pus was found in the pelvis. Before operation there had been no sudden fall of temperature and the leucocytes showed no change in frequent counts. The blood pressure remained high, falling slightly in the hours preceding operation. In the second case a young woman had a severe attack of typhoid fever. At the end of the first week of a relapse and on the fifty-seventh day of the attack grave abdominal symptoms occurred. In the preceding six weeks the blood pressure ranged between 104 and 125 millimetres of mercury. For some days abdominal pain had occasionally been complained of and there had been some tenderness on deep palpation which was never well localised. The abdominal distension rapidly increased, the pain became greater and more constant, and the tenderness increased while remaining general. The distension progressed and could not be relieved by the administration of turpentine by the mouth or by enemata. The pulse rose from 150 to 172 and the leucocytes from below 7000 to 17,000 per cubic millimetre. As perforation was thought probable laparotomy was performed. During the relapse the blood pressure ranged slightly below 120 millimetres and during the period of abdominal symptoms it was about the same, rising occasionally to 125. In the absence of any abrupt rise of blood pressure Dr. Briggs expressed the opinion before operation that perforation had not occurred. None was found and a filmy covering over two ulcers was the only sign of peritonitis. In the first case it is remarkable that the rise of blood pressure occurred so long before other symptoms of perforation. At the operation the peritonitis appeared to be of eight or ten hours' duration, which would correspond with the sudden rise of blood pressure. Dr. Briggs thinks that perforation must have preceded the rise of pressure. Perhaps extravasation took place first among the intestinal coils and pain was not felt until the inflammation reached the parietal peritoneum. Magendie long ago stated that pain could not be provoked in a part supplied by the sympathetic nerve—a view recently confirmed by Professor Lennander of Upsala.[2]

[1] THE LANCET, Oct. 3rd, p. 933.

THE LUNACY PROBLEM IN LONDON.

THE fourteenth annual report of the Asylums Committee of the London County Council refers to the character and growth in numbers of the insane in the county of London during the year ending March 31st, 1903. The report begins by stating that once more it is necessary to chronicle a large increase in the number of certified lunatics. Thus on Jan. 1st, 1903, the total number of patients chargeable to the county of London was 16,689, being an increase of 639 over the corresponding number for the previous year. In a table dealing with the entire pauper lunacy population of London since 1890 it is shown that whereas on Jan. 1st, 1390, the lunacy population amounted to 16,358 patients, in 1895 it reached 18,541, in 1900 it amounted to 21,393, and in 1903 to 22,952. Taking, however, the pauper lunatics whom the London County Council alone, apart from other public bodies, is called upon to find accommodation for the figures are 10,100 for 1890, 12,108 for 1895, 15 061 for 1900, and 16,689 for 1903. It is thus evident that during the period 1890 to 1903 the total pauper lunacy population of London under the jurisdiction of the County Council and of other bodies has shown a steady increase. This is graphically illustrated in a chart (Table 2) attached to the report, showing the comparative rates of growth year by year of lunacy and of pauperism in relation to the general population. A simple calculation founded on the figures embodied in the chart shows that whereas during the 14 years (1889 to 1902 inclusive) the general population of London has increased by 11·4 per cent., its total lunacy population has increased by 38·9 per cent. It would appear from this that lunacy in London increases at a much more rapid rate than does the general population. There is, however, some doubt whether the increase is quite as rapid as the table indicates, for whereas 20 years ago a considerable number of unregistered lunatics lived with their relatives and friends nowadays they are taken with less reluctance to receive asylum care and treatment. Such a factor cannot operate, however, for an indefinite period of time and, moreover, its effect tends to be reduced to uniformity after a few years. The public asylums of London have been under the jurisdiction of the County Council only

[2] See Mr. C. W. Mansell Moullin's paper in THE LANCET of August 22nd, 1903, p. 514.

during a period of 14 years and the increase shown within that period seems to be mainly in continuity with the increase of the decade preceding it, so that the mere factors of "accumulation" of chronic cases and greater inclination to enter an asylum lose their force in an attempt to account for the steady and accelerating rate of increase of lunacy. Attention to these points, which are necessary to enable correct conclusions to be reached in regard to this question, has been drawn in leading articles and annotations in THE LANCET[1] in previous years. The London County Council has been vigorously coping with this increase of lunacy by building several asylums since it took charge of the lunatics of the county. Thus within the last decade it has opened asylums at Claybury, Bexley Heath, and Horton, and has provided an epileptic colony at Ewell. Since the last report a plan for a new asylum has been, and now is, under the consideration of the subcommittee for the housing and treatment of lunatics. The report refers to the recent disastrous fire at Colney Hatch Asylum and to the precautions taken at all institutions subsequently to that event in order to deal with unexpected outbreaks of fire. The special returns from the several asylums show that the average numbers of patients resident in each were as follows: in Hanwell Asylum it was 2544, in Colney Hatch 2490, in Banstead 2453, in Cane Hill 2139, in Claybury 2398, in Bexley Heath 2079, in the Horton Asylum 958, and in the Manor Asylum (Epsom) 685. The average number for all the asylums was, therefore, 15,746 patients. The total number of patients admitted to the asylums during the year was 4978. Of these 4579 were first admissions. The number discharged as recovered amounted to 1159 or 7·36 per cent. of the average number resident. The deaths during the year amounted to 1519, or 9·6 per cent. as calculated on the same basis. During the financial year ending March 31st, 1903, the weekly cost of maintenance has averaged 11*s.* 5*d.* per patient and the uniform weekly rate charged to the parishes and unions within the county was 11*s.* 8*d.* The result of the year's working has been an aggregate profit from this source of £12,925.

GASTRIC EROSIONS.

IT is now fully established that there exists a condition of the stomach in which profuse gastrorrhagia may occur and yet no real ulcer may be present. On the gastric mucous membrane are found minute erosions from which during life blood may be seen to pour in an almost continuous stream. Dieulafoy, who first described gastric erosions, distinguished two varieties; the one he called simple erosions and described them as mere surface abrasions of the mucous membrane, and the other he named "exulceratio simplex," in which the lesion is sufficiently deep to lay bare the vessel under the muscularis mucosæ. These distinctions are probably of no great importance but both of these varieties can give rise to the most profuse hæmorrhage, and yet after death the simple erosion may be easily overlooked but during life the blood is seen to come from numerous points in the mucous membrane. The onset is generally very sudden; in fact, the suddenness of onset may be of some little value in diagnosing the erosion from a gastric ulcer, for in the case of the gastric ulcer it is quite exceptional for the onset to be sudden. Another point to be considered is the profuseness of the hæmatemesis. A sudden and profuse hæmorrhage from the stomach is much more likely to result from an erosion than from a gastric ulcer. The most suitable treatment for this condition is still undetermined but surgery offers the best chance, for gastric rest and the administration of hæmostatics, even of adrenalin, seem to be of little avail. When the stomach has been opened the bleeding area can be surrounded by a purse-string suture and thus the bleeding may be controlled. A case of gastric erosion successfully treated in this manner was in St. Bartholomew's Hospital at the end of last year under the care of Sir Dyce Duckworth and Mr. H. T. Butlin, who communicated a paper on the case at the meeting of the Clinical Society of London on Oct. 8th, a report of which will be found on p. 1057 of our present issue. The severity of the hæmorrhage seems to preclude any delay and the procedure adopted by Mr. Butlin appears to give the best chance of a favourable issue.

[1] The Lunacy Problem and Official Statistics, THE LANCET, August 31st, 1901, p. 603; The Lunacy Problem as it affects London, THE LANCET, Sept. 27th, 1902, p. 880.

THE BIRMINGHAM CREMATORIUM.

THE opinions of men whose minds are diversely swayed by science and by religion may well be expected to disagree on such a subject as the disposal of the dead. Happily, however, not only are scientific men often religious, but also religious men are often scientific. The possible harmony between representatives of the two types of intelligence was well illustrated at the recent opening ceremony of the Birmingham crematorium. Sir Henry Thompson and Sir Oliver Lodge were more explicit of, but no more enthusiastic upon, the advantages of cremation than were the Bishops of Worcester and of Coventry. That there is still in this country a great deal of objection to cremation, based upon ideas of mistaken sentiment and mistaken religious feeling, is undoubted. We hope that the words of the Bishop of Worcester on the occasion to which we refer will come to the eyes of all who hold those erroneous ideas. The Bishop said in a letter read at the opening ceremony of the crematorium, "What I should desire when I myself die is that my body should be reduced rapidly to ashes, so that it may do no harm to the living, and then in accordance with Christian feeling be laid in the earth." Similarly the Bishop of Coventry wrote that "in spite of strong sentimental objections very naturally entertained, we shall come to see that under the conditions of modern life cremation is not only preferable from the sanitary point of view, but that it is also the most reverent and decent treatment of the bodies of the dead." Sir Henry Thompson's address dealt with the history of the cremation movement from its origin in 1874. He referred to the passing of the general Act last session and to the certain increase of cremation in the future. The proceedings at the opening of the Birmingham Crematorium should go far to impress the minds of any who study them with a sense of the desirability of cremation whether viewed from a religious or from a scientific and sanitary standpoint.

THE METROPOLITAN WATER-SUPPLY.

THE report on the condition of the metropolitan water-supply for the month of August has been published. The Thames river water at Hampton, Molesey, and Sunbury was in good condition from the first to the twenty-fourth and from the twenty-eighth to the thirty-first days of the month; on the twenty-fifth and twenty-sixth days it was, according to the statement of the engineer of the Chelsea Waterworks Company, of "bad," and on the twenty-seventh day of indifferent, quality. In the absence of Dr. T. E. Thorpe, F.R.S., the chemist appointed by the Local Government Board, the analytical work was apparently undertaken by "H. J. Helm," for so the report is signed. One full analysis was made of one specimen of the water supplied by each company on August 18th. It was found that the relative amount of organic impurity in the waters examined might be numerically expressed as follows: Kent 8, New River 19, West Middlesex and Grand Junction 36,

Chelsea 37, Southwark 40, East London 42, and Lambeth 49. It does not appear that any specimen of the water supplied by any company was "fully examined" either during or after that period of the month during which the river water of the Thames was in an indifferent or bad state. This fact may be worthy of the attention of the London Water Board and of the representatives of the metropolitan borough councils.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON.

THE course of lectures for the winter session will be opened by Dr. S. H. Habershon by two lectures on Bronchiectasis on Oct. 21st and 28th at 4 P.M. These lectures will be illustrated by cases and are free to all qualified medical practitioners and to students of medicine. The lectures have hitherto been very badly attended. In fact, this is probably owing to the large number of other post-graduate courses in existence, and yet the Brompton Hospital for Consumption and Diseases of the Chest possesses ample valuable clinical material. The authorities have now decided to throw the lectures open to students as well as to qualified men and we most earnestly hope that advantage will be taken by both classes to attend these lectures which deal with forms of disease which are only too common, which are protean in their manifestations, and which are so very frequently met with in private practice.

THE autumn meeting of the South-Eastern Division of the Medico-Psychological Association will be held, by the courtesy of Dr. William Rawes, at St. Luke's Hospital, Old-street, E.C., of which he is medical superintendent, on Thursday, Oct. 29th. The programme is as follows: 1.30 P.M., members invited to luncheon; 2.15 to 3 P.M., inspection of the hospital; 2.15 P.M., meeting of divisional committee; 3 P.M., general meeting, when the time and place of the spring meeting of the division will be fixed and Dr. Rawes will give a short history of St. Luke's Hospital and Dr. F. W. Edridge-Green will open a discussion on "The Relation of Hysteria to Insanity." At 7 P.M. the members will dine together at the Café Monico, Piccadilly-circus, London, W. Communications should be addressed to the honorary secretary, Dr. Arthur Norman Boycott, Herts County Asylum, Hill-end, St. Albans.

THE medical officer of health of the Cape Colony reports that for the week ending Sept. 19th no case of plague in men or animals was notified, except at East London, where plague-infected rats were found. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on Oct. 9th states that for the week ending Oct. 8th there were 91 cases of plague and 54 deaths from the disease.

THE Odontological Society of Great Britain announces that it is prepared to receive applications for grants in aid of the furtherance of scientific research in connexion with dentistry. For particulars and forms of application inquiry should be made of the honorary secretary, Scientific Research Committee, Odontological Society, 20, Hanover-square, London, W.

WE regret to announce the death of Sir George F. Duffey, formerly President of the Royal College of Physicians of Ireland, which occurred at his residence in Ireland on Oct. 13th. Sir George Duffey was in his sixty-first year.

Mr. George Lawson, F.R.C.S. Eng., who was surgeon oculist in ordinary to Her Majesty the late Queen Victoria, died on Monday afternoon last at 12, Harley-street, Cavendish-square, W.

KING'S COLLEGE HOSPITAL.

THE governors of King's College Hospital have resolved to remove the institution from its present position in Portugal-street, Lincoln's Inn, London, W.C., to a site in South London not yet decided upon at a cost of upwards of £300,000, which it is hoped that the public will furnish. Founded 60 years ago as a local charity and a medical school for King's College the hospital is housed in a building which the medical staff of the institution has unanimously condemned as not only inadequate in accommodation but also obsolete in design, insanitary in arrangement, and wholly behind the hygienic requirements of the day; the method of construction and the extremely narrow limits of the site upon which the building stands being such that even the expenditure of £100,000 in patching it up would not bring it near the standards of modern science and hygiene. Moreover, while the hospital has undoubtedly long met a definite local need, the conclusion has lately been forcing itself upon its managers and others specially interested that it can no longer be said to do so because of the clearances in connexion with the Strand improvements and the migration of population from its neighbourhood to districts north of Holborn and south of the Thames. Only "a few poor streets" form its present "immediate vicinity" and for cases from among the dwellers there ample accommodation exists in St. Bartholomew's, Charing Cross, and the Royal Free Hospitals; but the vast area and population between Wandsworth and Greenwich particularly need the advantages which can be furnished only by a large general hospital. When removal was seriously put forward on the initiation of both the council of King's College and the committee of the hospital some members of the committee, regardful of the associations and sentiments which have arisen around the institution and the magnitude of the scheme involved, offered the proposal a mild opposition and followed that by resigning membership, and the majority left were not quite sure how the general body of governors would view the matter.

A special court of the corporation of the president, vice presidents, and governors was held on Oct. 12th in the large theatre at King's College in order to put the question to a proper test. Mr. W. F. D. Smith, M.P., one of the vice-presidents, who had acted as chairman of the committee in connexion with the removal question, was called upon to preside there was a fairly representative attendance. The secretary (Mr. H. S. TUNNARD) read letters from H.R.H. the Duke of Cambridge, the Archbishops of Canterbury and York, Lord Lister, Sir Albert Rollitt, M.P., and others, expressing inability to be present and their approval of the proposal.

Mr. SMITH explained that as the hospital had been founded under an Act of Parliament it was impossible to deal with the building or the land upon which it stood without an amending Act, the promotion of which it was necessary should be sanctioned by the governors. The legal aspect of the case had been examined by the solicitors to King's College who had framed a motion empowering application to Parliament for a Bill. He hoped that the policy embodied in the motions to be proposed would be adopted by such a majority of those then assembled as to render further meetings on the subject unnecessary.

Dr. T. BUZZARD, in the absence of Lord Lister, moved:—

That this court approves of the proposal to remove King's College Hospital to a site in South London.

In supporting this proposal he said that the hospital was one which by lapse of time had become inefficient for its purposes as a hospital, because the science of hospital construction and arrangement had progressed very much indeed since it was built. Moreover, from other circumstances it had ceased to be of the value to the poor which it originally possessed. He was a resident medical officer in the original King's College Hospital 50 years ago and he could tell of the extraordinary change which had taken place in the neighbourhood in that half century. So great was the alteration that he had not the least doubt of the necessity for removal and he hoped the governors would agree to his motion, for he could assure them that the scheme had met with the most studied and careful consideration of those who were responsible for it. He thought they would be doing a great public duty in removing from central London, where so many large hospitals were crowded together at no great distance from each other,

and in finding a place comparatively in the suburbs to which the poor population was drifting every hour. They must not forget that the medical school was an important part of the hospital and if they would keep pace with the advance in medicine and surgery it was imperative to obtain more room and greater extension of equipment than the present building could furnish. The existing deficiency was acting prejudicially against the medical school, for students would not come where the requirements of modern science were not to be had.

Mr. C. AWDRY, in the absence of the Bishop of Exeter, seconded the motion. As treasurer he had carefully considered what was their duty at this juncture in view of the large amount of money the scheme involved and he had reluctantly come to the conclusion that it was necessary to remove the hospital to a site where it would more fully meet the generous and charitable designs of its founders.

Mr. S. J. WILDE, one of the oldest subscribers, said he must vote against the proposal. He had known the district for a great many years and while it was quite true that the character of the neighbourhood around the hospital had changed there were many people living there still. Charing Cross Hospital was not in a poor neighbourhood, yet it was being extended at a very large cost, which showed the necessity of its continuing where it was. He was afraid that removal would be a step towards severing the hospital from the College. If, however, removal was necessary this was a very inopportune time for it because so many other central hospitals were begging at present and the sum wanted for the new King's College Hospital was a very large one.

Lieutenant-Colonel CLIFFORD PROBYN moved as an amendment—

That the further consideration of the motion to remove the hospital be postponed for a period of two years,

He believed that by that time many of the poor who had been disturbed by the Strand improvements would be re-established in the district and they would then know better what to do.

Mr. WILDE seconded the amendment.

Mr. H. S. COLLINS, who had given £1000 to the hospital entirely because of local sentiment, pointed out that if removal took place such contributions would cease. He regarded the expenditure on Charing Cross Hospital as a great waste of money and thought that on charitable grounds there should have been some communication between that hospital and King's College to see whether the two could not be brought together.

The Rev. Dr. HEADLAM, Principal of King's College, stated that it was quite true nine or ten members of the committee of management had resigned, but he understood that their opposition arose not from objection to the removal but on account of the difficulties that would have to be faced in connexion with the scheme. They all felt there would be difficulties, but if they were convinced that removal was right and would be beneficial they ought to face these difficulties, put their needs before the public, and do their best to carry out the proposal. The enlargement of Charing Cross Hospital was a reason for the removal of King's College, because there was room for one but not for two, and their medical students had to go further and further afield for the training that was necessary to them. He hoped that in moving to South London they might be able to meet a great need and be able to build a hospital which was up to the standard of modern requirements.

Mr. M. M. MCHARDY urged that the site to be looked for should be adequate and suitable for a building to provide 600 beds.

On a show of hands the amendment, which secured only six supporters, was rejected. The motion was then carried, only five hands being held up against it.

Mr. SMITH, in answer to questions stated that there would be plenty of money available to secure at least a suitable site which in his view should be "on the centre of the fringe of South London."

On the motion respectively of Dr. D. FERRIER, seconded by Mr. W. WATSON CHEYNE, and of Colonel FELLOWS, seconded by Mr. WILDE, the joint committee appointed by the council of King's College and the committee of management of the hospital was authorised to acquire a suitable and adequate site, and to apply to Parliament for an Act to contain any powers necessary to carry out the removal of the hospital and power to sell, mortgage, lease, or otherwise dispose of the present site.

ANNUAL REPORT (1901-02) OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.[1]

III.

BEFORE concluding our notice of the inspections made in 1901-02 by the medical staff of the Local Government Board (the details of which fill about 230 pages of Mr. W. H. Power's report), we think it right to comment very briefly on the question of sanitary administration generally, as suggested to us by a perusal of the reports of the several inspectors. Our library contains a goodly number of reports by successive medical officers of the Board, from Sir John Simon onwards, every volume of which furnishes particulars of local investigations made by experts of acknowledged competence concerning some of the more glaring instances of sanitary delinquency brought to light during the year. On turning over, at random, the pages of any one of these volumes we meet with case after case of grave neglect of statutory duty by sanitary authorities, almost always culminating in more or less serious outbursts of preventable disease. When it is realised that only in the rarest instances are these inquiries directed by the Board, unless either at the urgent request of some defaulting authority apprehensive of financial loss from deserted lodging houses, or else on the petition of actual sufferers from the neglect of their statutory protectors, we are constrained to ask what is the sum-total of loss of life and health that is caused annually in this country, and especially in our "health resorts," by the greed, the ignorance, or the apathy of the authorities who are the appointed custodians of the public health.

We do not possess the means to answer this question but it is certain that the Local Government Board—advised by its own medical staff and kept informed on health matters by an army of medical officers of health stationed everywhere for this very purpose—must be cognisant of the local sanitary shortcomings of which we are allowed to see an occasional example but the full extent of which the Board refuses to make public. The Board unquestionably possesses the power to call to account the authorities responsible for the neglect referred to and we are astonished that English public opinion has not long ago protested against the continued application of mere palliatives for the removal of an acknowledged national danger.

In numerous recent instances we have found it desirable on public grounds to direct attention in our columns to the accumulations of insanitary conditions against which medical officers of health have to contend in their efforts to conserve the health of the people—conditions of which Dr. H. T. Bulstrode supplies a striking and typical example in his present report on the sanitary state of Whitehaven. As an excuse for inaction in similar circumstances it is often contended by sanitary authorities that in order to deal effectually with evils of such magnitude nothing short of wholesale demolition of entire insanitary areas would be of permanent avail and that the rehousing of the evicted people required by law would involve local financial ruin. We are, of course, familiar with this specious reasoning and equally so with the appeal *ad misericordiam* which often effectually accompanies it. Considerations of this kind may probably have weighed with the Local Government Board and may have induced it to deal leniently with authorities which unfortunately inherit statutory responsibility for defects not of their own causing and which are doing something at least for their removal. But what excuse can be made on behalf of district councils which are perpetuating the same evils in cottage property now actually in course of construction? Why does the central authority tolerate the covering of vast areas of land with dwelling-houses which, built in defiance of sanitary knowledge, will in a few years present conditions hardly better than those which render the slum property of our older towns unfit for human habitation? To both these questions the answer is too obvious to require formal statement.

The speculative builder of to-day avoids the territory of our great municipalities where, at any rate, some regard is paid to the durability of houses built within their jurisdiction. He directs his attention generally to the confines of populous towns, to suburbs where sanitary matters are in the

[1] Previous notices of this report were published in THE LANCET of Sept. 19th (p. 839), and of Oct. 3rd (p. 972), 1903, respectively.

hands of district councils composed mainly of petty tradesmen who equally with himself are anxious for the rapid extension of house building. Being in appearance a man of affluence the speculative builder readily obtains a seat on the district council and, devoting much attention to local affairs, he speedily rises to an influential position among his fellow councillors. He then proceeds to acquire possession of every available acre of land in the district and to erect thereon row after row of cottages which will stand long enough to enable him to dispose of them to his own satisfaction and to repeat the same process elsewhere, probably in a distant part of the country.

Within less than a score of miles from where we write, in districts fringing the metropolis and beyond the reach of London by-laws, thousands of cottages are now being erected, many of them are water-logged and others are on "made" land—cottages which if built within the metropolitan area would not pass muster for a day. But what is particularly distracting from the Londoner's point of view is this—that the sites now being covered with sparely built houses will almost certainly be absorbed into the metropolitan area not many years hence; in which event the successors of our present borough councillors will have to deal with what will then have become unhealthy areas after the manner in which certain of the older areas of London are at this moment being dealt with.

From the preventive standpoint that portion of Mr. Power's report which deals with the Board's administrative action in relation to the London small-pox epidemic in the period to which his report relates is full of interest and instruction. From the beginning of the epidemic to the end of March, 1902, the notification of cases of small-pox in London amounted to about 6000. But although this total is a large one it must not be inferred that London in its entirety suffered heavily from the disease. In the later months of 1901 St. Pancras, St. Marylebone, Holborn, and Bermondsey, and in the earlier months of 1902 Shoreditch, Bethnal Green, Stepney, Poplar, St. Pancras, Hackney, Southwark, Camberwell, and Battersea suffered most severely from the epidemic. But even in these boroughs the disease did not involve more than limited sections of the population, whilst not a few boroughs were from first to last comparatively free from small-pox. The Board in its capacity as the sanitary intelligence department of the State—always alive to the risk of the importation of small-pox from abroad and mindful of the scandalous neglect of vaccination in London to which we have already referred—took exceptional pains to bring about, through its medical staff, better administration of the vaccination law by the guardians, forcibly reminding them of their responsibilities in connexion with the epidemic.

Circulars were addressed to the borough councils urging upon them the necessity for energetic action with a view of limiting the spread of infection, such, e.g., as the medical examination of all notified cases and their immediate isolation in hospital, the disinfection of houses and bedding, and the vaccination of so-called "small-pox contacts." The Board further adopted the unusual course of requesting that its medical department should be kept supplied with precise information of the measures which in each case had been taken by the local officers to check the spread of infection. The London School Board was also approached and its attention was directed to the large proportion of unvaccinated children in certain small-pox stricken parishes; it was urged to encourage the prompt vaccination of such children with the hope of preventing the spread of infection by contact in school. The School Board thereupon promptly resolved to afford facility under reasonable conditions to the vaccination officers of the metropolis to enter the schools belonging to the Board in infected areas and to examine the arms of children with a view of inducing parents to allow the vaccination of those who were unprotected. At a later date the Local Government Board communicated further with the metropolitan borough councils to the effect that cases of small-pox were frequently escaping detection owing to their being mistaken for chicken-pox; it was therefore suggested by the central authority that chicken-pox should be included in the list of diseases the notification of which is compulsory under the London Public Health Act. It will be remembered that this action of the Board led subsequently to the addition of notified cases of chicken-pox to the weekly returns of cases of infectious disease in London published by the Registrar General. Referring to the splendid services rendered by the Metropolitan Asylums Board in combating small-pox Mr. Power writes thus: "Here it is not necessary to say more than that, under circumstances of exceptional difficulty and pressure, the authority in question expanded and increased both its hospital accommodation and its land and river ambulance service so as to keep pace always with the demands of the metropolis. Throughout the epidemic no disadvantage to London arose by delay of removal of small-pox patients from their homes or of their reception and treatment in hospital. There can be no doubt at all that the efficiency of the Metropolitan Asylums Board, as hospital and as ambulance authority, largely contributed to such measure of success as was attained in dealing with London small-pox." Passing on to review, on the one hand, the exemplary conduct of the great majority of the municipal councils, and on the other, the reprehensible behaviour of certain boards of guardians in neglecting their statutory duties, Mr. Power deals leniently with the very few among the former which, reflecting, perhaps, the antagonistic spirit of their guardian colleagues, had incurred the special censure of the Board. He nevertheless pointedly alludes to, although he forbears to name, a certain recalcitrant council which paid the penalty of disobedience by losing the services of no less than five of its own officials through their being attacked by small-pox. Although, in the exercise of his discretion, Mr. Power has deemed it inexpedient to praise municipal borough councils the preventive action of which against small-pox deserved high commendation, or, on the other hand, to hold up to reprobation individual boards of guardians which in the face of a terrible epidemic exceptionably failed in the performance of a public duty, he feels called upon to mention one vaccination authority—the board of guardians of St. Giles and St. George, Bloomsbury—the action of which was in the highest degree commendable. Under this vaccination authority very thorough measures of vaccination and re-vaccination were carried out from the first. It is the municipal borough of Holborn which profited by the services of this public-spirited board of guardians. This borough was early invaded by small-pox and there is no doubt that but for the coöperation against small-pox here happily prevailing between independent authorities jointly responsible for the repression of the disease, the rapidly growing and severe epidemic in Holborn would have attained much graver proportions.

As regards preventive measures against importation into this country of cholera and bubonic plague Mr. Power refers to the routine records of the prevalence of cholera abroad which have, as in past years, been continuously kept by members of his staff, and to the exceptional action of the Board's inspectors during the year in respect of plague. Early in 1901, on the occurrence of certain cases of locally suspected plague in districts within the outer ring of London, the Board deemed it proper to direct two of its inspectors to visit a number of the districts referred to and generally to remind the local authorities concerned of their responsibilities as well as to advise them with regard to the precautionary measures desirable to be taken beforehand in dealing with actual or suspected cases of the disease.

As regards the final section of this report, which treats of the auxiliary scientific investigations undertaken on the Board's behalf during the year, inasmuch as they do not admit of summarising we have no alternative but to refer our readers for particulars to the report before us, fully one-third of which is occupied with the highly interesting and important details contributed by Dr. Klein, Dr. Martin, Dr. M. H. Gordon, Dr. A. C. Houston, and Dr. J. S. Haldane.

MEDICINE AND THE LAW.

The Analysis of Perishable Articles of Food.

THE first prosecutions instituted by the Norfolk County Council in respect of the addition of boric acid to milk came recently to an unfortunate conclusion. In one case which was gone into fully the milk was proved by analysis to contain 22·9 grains of boric acid per imperial pint. The defendant's solicitor, however, took the point that the certificate of the public analyst was silent as to whether any change had taken place in the milk that might interfere with the analysis. The magistrates, after retiring to consider the facts and the point of law thus raised, intimated that they were satisfied as to the addition of boric acid and also that

its presence in the quantities shown was such as to render the milk injurious to health. On the ground, however, that the certificate of analysis did not contain the necessary statement as to the condition of the milk when analysed the bench dismissed the summons, and three other cases in which a similar omission had been made were similarly disposed of. In a sense the point raised may be described as a technical one and the Cromer magistrates themselves so referred to it, but although it is a matter of regret that legal proceedings of importance in the interest of the public health should fail upon technical grounds, the provision to which attention was thus called is a useful one as it prevents any discussion being raised at the hearing of a summons as to the condition of the article analysed at the time of its examination and any consequent questioning of the accuracy of the certificate. The Sale of Food and Drugs Act, 1875, under which the proceedings were taken, has only one schedule and this gives the form which the certificate of the analyst should take, to which are appended brief notes, the last of which concludes with the words: "In the case of a certificate regarding milk, butter, or any article liable to decomposition, the analyst shall specially report whether any change had taken place in the constitution of the article that would interfere with the analysis." It may be observed that the summons in the case heard at Cromer was taken out under Section 3 of the Act, which enables a fine of £50 (or in the case of a repeated offence a term of imprisonment) to be imposed upon any person who shall mix with an article of food any ingredient so as to render the article injurious to health, with intent that it may be sold in that state. The prosecutions under the Sale of Food and Drugs Act with which the public and its caterers are most familiar are those under Section 6, where the offence charged is selling to the prejudice of the purchaser an article of food which is not of the nature, substance, and quality of the article demanded. The penalty under this section is limited to a fine of £20.

'A Funnel a Chimney'

It has been decided at the Mansion House police-court that the funnel of a steam-tug emitting black smoke is a chimney within the meaning of Section 24 of the Public Health (London) Act, 1891. It was stated in court that there would be an appeal upon this question and the result should be watched with some interest by those who live near rivers that are commercial thoroughfares as well as by owners and masters of steamboats. The section in question refers to "any chimney (not being the chimney of a private dwelling-house) sending forth black smoke in such quantity as to be a nuisance," and this passage is taken without alteration from the 91st section of the Public Health Act, 1875, so that it has had an existence of many years without the question of its applicability to steam vessels being raised and decided. This, however, is no doubt accounted for by the presence of another section in the Public Health (London) Act dealing directly with smoke abatement on board ship in the Thames. Proceedings against tug owners and others are usually taken under this section, so that the present prosecution must be looked on as a legal experiment. Attention was called recently in THE LANCET[1] to the fact that smoke must be black and not brown or of any other tint according to the Public Health Acts in order to constitute a nuisance. It is curious to find in the same sentence another expression which might have been improved upon in 1891 had the sub-section been considered in all its bearings instead of being adopted from the existing Act without alteration.

Registration and Vaccination.

A man named Richard Green, of Barclay-road, Walthamstow, was recently fined 20*s* and 6*s*. 6*d*. costs for giving a false address as the place of birth of his child when registering it. This was done in order to avoid vaccination. It is not an uncommon device but it is one which gives some trouble to the vaccination officer who in the performance of his duty has to trace out the case. It is a trick, moreover, which deserves severe punishment not only in view of the difficulty which it imposes upon the proper carrying out of the law as to vaccination but because for other reasons the accurate registration of births is of importance to the public and to the infants registered.

Carbolic Acid as a Poison.

Carbolic acid is frequently used as a means of committing suicide and it also is the cause of death in a great many instances in which it is taken accidentally. The gross carelessness with which it is treated by persons who should be sufficiently well-informed to guard against such mishaps is shown at the inquests which follow in fatal cases. At one of these held recently at Derby upon the body of a man who had been the holder of an off-licence for the sale of alcoholic liquors it was proved that the deceased was in the habit of taking certain medicine which had been prescribed for him by drinking it out of the bottle in the dark without any measurement of the quantity taken. He kept the bottle of medicine on a shelf in his bedroom side by side with two other bottles, one of which contained port wine and the other carbolic acid. One night he drank carbolic acid instead of his medicine and died. It is not easy to protect the lives of persons so reckless.

[1] THE LANCET, Oct. 10th, 1903, p. 1029.

ASYLUM REPORTS.

Monmouthshire Asylum, Abergavenny (Annual Report for 1902).—The average number of patients resident during the year was 1105, comprising 543 males and 562 females. The admissions during the year amounted to 247—viz., 127 males and 120 females. Of these 207 were first admissions. Dr. J. Glendinning, the medical superintendent, states in his report that the ordinary admissions were the highest in any year since the opening of the asylum and were 23 in excess of those admitted during 1901 and 27 more than the average annual admissions during the previous ten years. Many of these patients were very much enfeebled and debilitated. The principal causes of mental disorder among the admissions were bodily disease and debility in 60 cases, intemperance in drink in 34 cases, and hereditary predisposition to insanity in 47 cases. The number of patients in the asylum on Dec 31st was 1111, "and as the statutory accommodation in the asylum is for 1077 patients there has been considerable overcrowding both in the male and female divisions." This overcrowding will necessitate the removal of patients from the counties of Brecon and Radnor to the new asylum at Talgarth. The number of patients discharged as recovered during the year amounted to 102—viz., 51 males and 51 females—or 9·2 per cent. of the average number resident. The deaths during the year amounted to 112, or 10·1 per cent. as calculated on the same basis. Of the deaths two were due to senile decay, four to epilepsy, six to renal disease, eight to pneumonia, 12 to pulmonary tuberculosis, 14 to cerebral softening, 15 to general paralysis of the insane, 28 to cardiac disease, and the rest to other causes. The Commissioners in Lunacy state in their report that the general condition of the asylum was very good, that the patients were suitably lodged with due regard to safety and comfort, that the dormitories were in excellent order and the bedding was scrupulously clean, that the general health of the patients appeared to be satisfactory and that their condition as regards dress and personal neatness was eminently satisfactory, and that the medical case-books and records were well kept, the former being illustrated with excellent photographs. The committee of management states in its report that part of the "Maindiff Estate," together with a good range of farm buildings and cottages standing thereon, was purchased for the sum of £9649, the extent of ground occupying 82 acres. Various improvements have also been effected in the farm, in the boiler-house and in the stores.

Suffolk County Asylum (Annual Report for 1902).—The average number of patients resident during the year was 582, comprising 257 males and 325 females. The number of patients admitted during the year was 214—viz., 103 males and 111 females. Of these, 175 were first admissions. Dr. James R. Whitwell, the medical superintendent, states in his report that there was an increase in the gross admissions for the year of 45 as compared with the previous year and that this increase was very largely made up of new cases. Although the majority of patients admitted were in fair bodily condition "over 30 per cent. were in an enfeebled and exhausted condition, mostly owing to the fact that they were not brought under treatment sufficiently early." The number of patients discharged as recovered during the year amounted to 66—viz., 42 males and 24 females, or 11·3 per cent. of the average number resident. The deaths during the year amounted to 79—viz., 27 males and 52 females, or 13·6 per cent. as calculated on

the same basis. Of the deaths three each were due to epilepsy and enteric fever, four to renal disease, 12 each to cardiac disease and general paralysis of the insane, 12 to pulmonary and other forms of tuberculosis, 18 to senile decay, and the rest to other causes. Post-mortem examination was made in every case of death except one. The casualties during the year were few and of no serious character. One patient was discharged within a short time of admission as an analysis of his case showed that he was suffering from deaf-mutism only. The average weekly cost of maintenance during the year has risen from 10*s.* 6¼*d.* to 11*s.* 1½*d.*, of which 5½*d.* is due entirely to outside causes—namely, local rates. "This increase is one largely due to a multiplicity of causes inseparable from the transition stages of heating and lighting and to the condition of boarding out [patients] in other counties. ..... It is hoped that as our new buildings gradually become occupied the cost of maintenance will gradually resume a normal figure." The institution as a whole has been lighted with electricity since December, 1901, and it appears to be a safer, healthier, and more economical method of lighting than that which has hitherto been used. "The average annual increase of patients admitted to the asylum is, roughly speaking, about 11 and shows no sign of diminishing. ..... An actual increase of mental disease can be shown to exist out of proportion even to the population." The Commissioners in Lunacy state in their report that the wards of the asylum were found to be in excellent order, that the patients were very orderly and generally contented and in a satisfactory condition as regards dress and personal neatness, and that the medical case-books and post-mortem records were carefully and well kept. The committee of management states in its report that the whole asylum is now lighted with electricity and that fire alarms and telephones have been fixed throughout the building. The water-supply is excellent and the sewage works have proved themselves efficient.

Looking Back.

FROM

THE LANCET, *SATURDAY*, OCT. 15, 1825.

CAUTION TO PSALM SINGERS.

Dr. BLUNDELL, adverting, in his physiological lecture on Monday last, to the comparative anatomy of the maxillary joint in predaceous, and herbivorous animals, observed, in this respect, that man resembled the herbivorous class; but there was a greater extent of motion in the human jaw, and consequently a greater liability to dislocation. The learned lecturer mentioned a curious case in illustration of this fact. A devout person, of the Wesleyan persuasion, lifting up his voice in a hymn to its highest pitch, brought the condyloid process to the very edge of the glenoid cavity, and, attempting a shake at this critical moment, actually dislocated his jaw. We hasten to give publicity to this fact, that psalm-singers may not in future attempt to shake with their condyloid processes at the edge of their glenoid cavities. We may add too, that although psalm-singing is unquestionably one of the purposes for which jaws were given to man, yet their peculiar structure renders it doubtful whether the great Author of nature would not prefer a more moderate exercise of this function, than devout vocalists are wont to indulge in.

Bite of the Tarantula.

"There was a time when physicians believed that the bite of the tarantula destroyed sensation and life, and that the only remedies which could avert this fatal result were music and dancing. It was religiously believed at the time, that persons bitten by this insect evinced an invincible aversion to the colours of black and blue, while at the same time they manifested a decided predilection for white, red, and green. There were some who even went so far as to affirm that they had seen tarantulas dance in cadence to the patients, and there was no sort of absurdity broached by the people on this subject for which physiologists did not attempt to account. MEAD thought the poison acted directly on the blood, GEOFFREY on the nerves, and both these physicians, as well as GRUBE and SHUCHZER, were only followers, in this respect, of the celebrated BAGLIVI, who was a zealous supporter of these errors. The extravagance of the imposture operated as a cure for credulity. The courage of Dr. SANGINETTI, who caused himself to be bitten by tarantulas at the hottest period of the summer, without experiencing any serious inconvenience, and the excellent work of SERAO completely destroyed the romances to which physicians of the highest reputation had for three centuries given credit; and the malady was regarded only as a sort of hypochondriacal affection, to which the reapers are subject under the burning influence of the sun, in the vicinity of Tarentum. This last opinion which is now generally adopted, does not seem to accord with the case given by Dr. MAZZOLANI, and the attention of the physicians, who have opportunities of observing the effects of the bite of the tarantula may still be profitably directed to this subject."[1]

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8154 births and 4554 deaths were registered during the week ending Oct. 10th. The annual rate of mortality in these towns, which had been 16·5, 16·3, and 15·3 per 1000 in the three preceding weeks, rose again last week to 15·8 per 1000. In London the death-rate was 14·5 per 1000, while it averaged 16·3 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 4·7 in Hornsey, 9·1 in Handsworth, 9·6 in Croydon, 9·9 in Hanley, 10·4 in Reading, 10·5 in Derby, 10·6 in King's Norton, 10·9 in West Hartlepool, and 11·2 in Leyton; while the highest rates were 20·2 in Stockport, 20·3 in St. Helens, 20·4 in Merthyr Tydfil, 21·1 in Newcastle-on-Tyne, 21·2 in Ipswich and in West Bromwich, 21·4 in Middlesbrough, 22·8 in Rotherham, 23·4 in Sunderland, and 24·0 in Bootle. The 4554 deaths in these towns last week included 707 which were referred to the principal infectious diseases, against 918, 752, and 697 in the three preceding weeks; of these 707 deaths, 490 resulted from diarrhœa, 46 from whooping-cough, 45 from diphtheria, 45 from "fever" (principally enteric), 42 from scarlet fever, 34 from measles, and five from small-pox. No death from any of these diseases was registered last week in Hornsey, Reading, Burton-on-Trent, Handsworth, Barrow-in-Furness, Halifax, or West Hartlepool; while they caused the highest death-rates in West Ham, Wolverhampton, Warrington, Burnley, Preston, Middlesbrough, Sunderland, and Merthyr Tydfil. The greatest proportional mortality from measles occurred in Warrington, Bury, and Sunderland; from scarlet fever in Wolverhampton and Merthyr Tydfil; from diphtheria in Ipswich; from whooping-cough in Middlesbrough; from "fever" in St. Helens and Merthyr Tydfil; and from diarrhœa in West Ham, Wolverhampton, West Bromwich, Birmingham, Coventry, Warrington, Burnley, Preston, Rotherham, Middlesbrough, and Gateshead. Of the five fatal cases of small-pox registered in these towns last week two belonged to Bolton and one each to Leicester, Salford, and York. The Metropolitan Asylums hospitals contained 17 small-pox cases on Saturday last, Oct. 10th, against 41, 29, and 21 at the end of the three preceding weeks; two new cases were admitted during the week, against seven, one, and one in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 1803, 1886, and 1877 at the end of the three preceding weeks, had risen again to 1881 at the end of last week; 240 new cases were admitted during the week, against 261, 293, and 235 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 128, 134, and 161 in the three preceding weeks, declined again to 146 last week, and were 21 below the number in the corresponding period of last year. The causes of 42, or 0·9 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Leicester, Nottingham, Salford, Newcastle-on-Tyne, and in 47 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Bootle, Sheffield, Hull, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal

[1] Observations by M. Magliari, the editor of the *Osservatore Medico*, on a case published in that journal by Dr. Francesco Mazzoiani of Naples. The patient was Giovanni Battista Petrini, a young Tuscan, about 15 years old, who was bitten on the second toe of the left foot while sleeping in the open fields at harvest time.

Scotch towns, which had been 16·1, 16·8, and 17·3 per 1000 in the three preceding weeks, declined again to 16·0 per 1000 during the week ending Oct. 10th, but was 0·2 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 9·3 in Perth and 14·2 in Aberdeen, to 18·0 in Greenock and 19·8 in Dundee. The 525 deaths in these towns included 41 which were referred to diarrhœa, nine to "fever," eight to measles, six to whooping-cough, four to scarlet fever, and three to diphtheria, but not one to small-pox. In all, 71 deaths resulted from these principal infectious diseases last week, against 51, 77, and 65 in the three preceding weeks. These 71 deaths were equal to an annual rate of 2·2 per 1000, which was 0·2 per 1000 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 44 and 42 in the two preceding weeks, further declined last week to 41, of which 21 occurred in Glasgow, ten in Dundee, three in Aberdeen, three in Greenock, and two in Edinburgh. The deaths referred to different forms of "fever," which had been five, seven, and six in the three preceding weeks, rose again to nine last week and included five in Glasgow and three in Dundee. The fatal cases of measles, which had been eight, five, and four in the three preceding weeks, increased again last week to eight, all of which were registered in Glasgow. The deaths from whooping-cough, which had been ten, nine, and seven in the three preceding weeks, further declined to six last week and included three in Glasgow. The fatal cases of scarlet fever, which had been three, four, and two in the three preceding weeks, rose again last week to four, of which two occurred in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 71, 84, and 88 in the three preceding weeks, declined again last week to 62, and showed a decline of 44 from the number in the corresponding period of last year. The causes of 11, or more than 2 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 19·5, 21·7, and 18·3 per 1000 in the three preceding weeks, rose again to 19·7 per 1000 during the week ending Oct. 10th. During the past four weeks the death-rate has averaged 19·8 per 1000, the rates during the same period being 15·0 in London and 16·8 in Edinburgh. The 143 deaths of persons belonging to Dublin registered during the week under notice were ten in excess of the number in the preceding week and included nine which were referred to the principal infectious diseases, against 17, 16, and five in the three preceding weeks; of these, four resulted from diarrhœa, two from whooping-cough, one from scarlet fever, one from diphtheria, and one from "fever" but not any from either small-pox or measles. These nine deaths were equal to an annual rate of 1·2 per 1000, the death-rates last week from the principal infectious diseases being 2·1 in London and 1·0 in Edinburgh. The fatal cases of diarrhœa, which had been five, 14, and three in the three preceding weeks, rose again last week to four. The 143 deaths in Dublin last week included 32 of children under one year of age and 29 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons showed a slight decline from the respective numbers recorded in the preceding week. One death from violence and seven inquest cases were registered, and 64, or nearly 45 per cent., of the deaths occurred in public institutions. The causes of five, or nearly 4 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING SEPTEMBER, 1903.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·5 per 1000 of the population, estimated at 4,613,812 persons in the middle of the year. In the three preceding months the rates had been 6·0, 6·4, and 5·5 per 1000 respectively. The rates were considerably below the average in Kensington, Chelsea, the City of Westminster, Hampstead, Stoke Newington, Holborn, and the City of London, while they showed the largest excess in St. Marylebone, Hackney, Finsbury, Bethnal Green, Stepney, and Deptford. The prevalence of small-pox showed a further marked decrease from that recorded during recent months; of the 27 cases notified during September, 15 belonged to Lambeth, four to St. Pancras, two to Battersea, and one each to Hammersmith, the City of Westminster, St. Marylebone, Islington, Stepney, and Southwark. The Metropolitan Asylums hospitals contained 21 small-pox patients at the end of last month, against 57, 66, and 57 at the end of the three preceding months; the weekly admissions averaged five last month, against 12, 15, and nine in the three preceding months. Scarlet fever was rather more prevalent during September than it had been in the preceding month; the greatest proportional prevalence of this disease occurred in Finsbury, Bethnal Green, Stepney, Poplar, and Deptford. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1614, 1697, and 1754 at the end of the three preceding months, had further risen to 1849 at the end of last month; the weekly admissions averaged 241, against 195, 234, and 211 in the three preceding months. The prevalence of diphtheria showed a considerable excess over that recorded during August. Among the various metropolitan boroughs this disease was proportionally most prevalent in St. Marylebone, Hackney, Poplar, Deptford, and Greenwich. There were 671 diphtheria patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 781, 840, and 716 at the end of the three preceding months; the weekly admissions during September averaged 114, against 119, 130, and 114 in the three preceding months. The prevalence of enteric fever, which had shown a continued rise during the preceding five months, further increased last month; the greatest proportional prevalence of this disease was recorded in Stoke Newington, Hackney, Shoreditch, Stepney, and Bermondsey. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 88, 119, and 172 at the end of the three preceding months, had further risen to 247 at the end of last month; the weekly admissions averaged 40, against 17, 18, and 27 in the three preceding months. Erysipelas was proportionally most prevalent in Kensington, Holborn, Shoreditch, Bethnal Green, Southwark, and Bermondsey. The 20 cases of puerperal fever notified last month included three in Paddington, three in Southwark, two in Hammersmith, two in Fulham, two in Hackney, two in Stepney, and two in Lambeth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ending Oct. 3rd the deaths of 6380 persons belonging to London were registered, equal to an annual rate of 14·4 per 1000. The lowest death-rates in London last month were 10·0 in Hampstead, 10·2 in Stoke Newington, 10·8 in Hammersmith, 11·2 in Wandsworth, 11·7 in the City of Westminster, and 12·3 in Lewisham; while the highest rates were 18·1 in Shoreditch, 18·4 in Southwark, 18·9 in Stepney, 19·2 in Poplar, 19·5 in Finsbury, and 19·8 in Bethnal Green. The 6380 deaths from all causes included 1163 which were referred to the principal infectious diseases; of these, three resulted from small-pox, 54 from measles, 26 from scarlet fever, 56 from diphtheria, 77 from whooping-cough, 38 from enteric fever, and 909 from diarrhœa. The lowest death-rates last month from these infectious diseases were recorded in Chelsea, the City of Westminster, Hampstead, Stoke Newington, Holborn, and the City of London; and the highest rates in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The three fatal cases of small-pox included two in Lambeth and one in the City of Westminster. The 54 deaths from measles were 40 below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Fulham, St. Marylebone, Stepney, Lambeth, and Camberwell. The 26 fatal cases of scarlet fever showed a decline of 46 from the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in Paddington, Islington, Bethnal Green, Poplar, and Bermondsey. The deaths from diphtheria, which had averaged 198 in the corresponding

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING SEPTEMBER, 1903.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1903.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,613,812	27	1363	683	1	350	8	20	424	—	2876	6·5	3	54	26	56	77	—	38	—	909	1163	2·6	6380	14·4	166
West Districts.																										
Paddington	146,032	—	56	24	—	6	2	3	13	—	105	7·3	—	3	3	4	1	—	—	—	18	29	2·1	181	12·9	164
Kensington	178,409	—	24	25	—	8	—	—	20	—	77	4·5	—	1	—	2	1	—	2	—	38	44	2·6	213	12·5	229
Hammersmith	115,803	1	31	18	—	10	—	2	5	—	67	6·0	—	—	1	—	1	—	1	—	26	29	2·6	120	10·8	147
Fulham	147,780	—	34	25	—	10	—	2	12	—	83	5·9	—	4	—	3	1	—	—	—	10	18	4·1	189	13·3	196
Chelsea	74,169	—	8	6	—	1	—	—	4	—	19	2·7	—	—	1	—	1	—	—	—	6	8	1·1	91	12·8	158
City of Westminster	179,052	1	32	13	—	12	—	—	8	—	66	3·8	1	1	—	—	—	—	1	—	15	18	1·0	201	11·7	136
North Districts.																										
St. Marylebone	131,234	1	41	38	—	12	—	1	17	—	110	8·7	—	3	1	4	2	—	1	—	9	20	1·6	191	15·2	71
Hampstead	85,197	—	20	8	—	2	—	—	7	—	37	4·5	—	—	—	1	—	—	—	—	6	7	0·9	82	10·0	117
St. Pancras	235,716	4	76	44	—	19	—	—	17	—	160	7·1	—	4	1	3	1	—	4	—	27	40	1·8	328	14·5	155
Islington	339,137	1	116	22	—	24	—	1	23	—	187	5·8	—	1	4	2	4	—	1	—	39	51	1·6	425	13·1	145
Stoke Newington	52,069	—	6	2	—	7	—	—	3	—	18	3·6	—	—	—	—	—	—	—	—	6	6	1·2	51	10·2	167
Hackney	224,082	—	57	46	—	45	1	2	24	—	175	8·1	—	—	2	5	2	—	7	—	33	49	2·3	169	15·5	132
Central Districts.																										
Holborn	57,845	—	11	2	—	3	2	—	7	—	25	4·5	—	—	—	1	2	—	—	—	1	4	0·7	95	17·1	85
Finsbury	99,717	—	61	10	—	9	—	1	9	—	90	9·4	—	1	—	—	3	—	—	—	16	30	3·1	186	19·5	191
City of London	24,539	—	4	1	—	2	—	—	2	—	9	3·8	—	—	—	—	—	—	1	—	2	3	1·3	35	14·9	94
East Districts.																										
Shoreditch	117,513	—	33	15	—	18	—	—	17	—	82	7·3	—	—	—	—	3	—	3	—	36	42	3·7	204	18·1	256
Bethnal Green	130,028	—	56	25	—	7	—	—	24	—	112	9·0	—	—	3	4	5	—	—	—	40	50	4·0	247	19·8	197
Stepney	302,153	1	152	42	—	46	—	2	36	—	279	9·6	—	11	2	7	13	—	7	—	101	141	4·9	548	18·9	194
Poplar	169,550	—	69	42	—	7	—	—	11	—	129	7·9	—	—	2	5	4	—	—	—	53	64	3·9	312	19·2	222
South Districts.																										
Southwark	207,369	1	50	23	—	15	—	3	32	—	124	6·2	—	4	—	2	5	—	1	—	67	79	4·0	366	18·4	197
Bermondsey	129,801	—	36	13	1	13	—	—	22	—	85	6·8	—	1	2	2	—	—	1	—	33	39	3·1	220	17·7	212
Lambeth	307,711	15	81	24	—	14	1	2	21	—	158	5·4	2	7	2	1	7	—	1	—	58	78	2·6	423	14·3	158
Battersea	173,422	2	26	26	—	7	—	—	18	—	89	5·4	—	2	—	1	8	—	1	—	36	48	2·9	216	13·0	152
Wandsworth	249,678	—	90	29	—	12	—	—	28	—	167	7·0	—	3	—	3	4	—	1	—	36	47	2·0	269	11·2	152
Camberwell	265,562	—	57	43	—	10	—	—	14	—	124	4·9	—	8	1	2	5	—	1	—	53	70	2·7	339	13·3	151
Deptford	112,537	—	47	35	—	2	—	1	11	—	96	8·9	—	—	—	1	3	—	—	—	29	33	3·1	143	13·3	167
Greenwich	99,824	—	14	37	—	9	—	—	8	—	68	7·1	—	—	1	2	2	—	—	—	27	32	3·3	120	12·5	161
Lewisham	136,405	—	46	17	—	8	—	—	7	—	78	6·0	—	—	—	1	—	—	4	—	15	20	1·5	161	12·3	116
Woolwich	121,478	—	21	18	—	9	2	—	6	—	56	4·9	—	—	—	—	1	—	—	—	23	24	2·1	155	13·5	121
Port of London	—	—	—	—	—	—	3	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

periods of the ten preceding years, numbered only 56 last month; among the various metropolitan boroughs this disease was proportionally most fatal in Paddington, St. Marylebone, Hackney, Bethnal Green, Stepney, and Poplar. The 77 fatal cases of whooping-cough were 68 below the corrected average number; the greatest proportional mortality from this disease was recorded in Holborn, Finsbury, Stepney, Battersea, and Deptford. The 38 deaths from enteric fever were exactly one-half of the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs the highest "fever" death rates were registered in Kensington, St. Pancras, Hackney, Shoreditch, Stepney, and Lewisham. The 909 fatal cases of diarrhœa were slightly in excess of the corrected average number; this disease was proportionally most fatal in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was more than 21 per cent. above the average.

Infant mortality in London during September, measured by the proportion of deaths among children under one year of age to registered births, was equal to 166 per 1000. The lowest rates of infant mortality were recorded in St. Marylebone, Hampstead, Holborn, the City of London, and Lewisham; and the highest rates in Kensington, Shoreditch, Bethnal Green, Poplar, Southwark, and Bermondsey.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff Surgeon N. L. Richards to the *Barrosa* (dated Oct. 20th). Fleet Surgeons: W. Eames to Plymouth Hospital and A. L. Christie to the *Mars* (dated Oct. 12th). Surgeon L. S. Whitwam to the *Caledonia* (dated Oct. 12th).

ROYAL NAVAL VOLUNTEER RESERVE.

Sir Frederick Treves, Bart., K.C.V.O., C.B., to be Honorary Staff Surgeon (dated Oct. 6th, 1903) and Dr. Francis John Hannan to be Surgeon (dated Oct. 6th, 1903).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Richard G. Thomsett retires on retired pay (dated Oct. 14th, 1903); Lieutenant J. T. K. Thomson, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Surgeon-Lieutenant (dated Oct. 14th, 1903).

The following time-expired officers proceed to England in 1903 04 on duty with troops on homeward voyage as follows:—*Soudan*, Oct. 14th: Lieutenant-Colonel Emerson (in charge), Lieutenant-Colonel Stuart, Major Moore, Major Adamson, Captain Moore, and Captain Harrison. *Plassey*, Oct. 24th: Major Fayrer, Major Boles, Captain Smith, Captain Grattan, Captain Campbell, and Captain Hayes. *Sicilia*, Nov. 4th: Lieutenant-Colonel Battersby (in charge), Lieutenant-Colonel Tyrell, Major Hennessy, Major Jackson, Captain Forrest, and Captain Warning. *Assaye*, Nov. 13th: Lieutenant-Colonel Mulvany (in charge), Lieutenant-Colonel Dugdale, Major Norris, Major Nash, Major Windle, Captain Bliss, Captain Riddick, Captain Swabey, and Captain Hopkins. *Soudan*, Dec. 23rd: Lieutenant-Colonel Jones (in charge), Major Maher, Major Cocks, Major Hore, Captain MacDougall, and Captain Clements. *Plassey*, Jan. 1st: Lieutenant-Colonel Allfort (in charge), Lieutenant-Colonel Thomson, Major Macdonald, Major Inniss, Major Forde, Captain Cockrane, Captain Morris, and Captain Marriott. *Sicilia*, Jan. 8th: Lieutenant-Colonel Seymour (in charge), Lieutenant-Colonel Cowen, Major Green, Major Maturin, Major Young, and Captain Huddleston. *Assaye*, *viâ* Cape, Feb. 16th: Lieutenant-Colonel Johnston (in charge), Lieutenant-Colonel White, Major Watson, Major Davoren, Captain Brogden, Captain McCarthy, Captain Bowen, and Captain Young. *Soudan*, Feb. 26th: Lieutenant-Colonel Maclean (in charge), Lieutenant-Colonel Carey, Major Cardozo, Major Oree, Major Griffiths, and Captain Collingwood. *Plassey*, March 8th: Lieutenant-Colonel Geoghegan (in charge), Lieutenant-Colonel Carmichael, Major Thompson, Major O'Donnell, Major Bullen, Captain Martin, Captain O'Grady, Captain Carter, and Captain Hall. *Sicilia*, April 7th: Lieutenant-Colonel Birrell (in charge), Major Weir, Major Power, Major Wright, Captain Carroll, and Captain Macpherson.

Captain E. Brodribb, from half-pay, to be Captain, with precedence next below G. M. Goldsmith (dated Sept. 21st, 1903).

The name of Lieutenant (on probation) Osborne Ievers is as now described and not as stated in the *Gazette* of Sept. 18th, 1903.

ROYAL ARMY MEDICAL CORPS (MILITIA).

Lieutenant J. W. Hopkins is seconded for service under the Foreign Office (dated Sept. 29th, 1903).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Sussex: Surgeon-Lieutenant F. Loud resigns his commission and is appointed Captain (dated Oct. 10th, 1903) *Rifle*: 1st Volunteer Battalion the East Yorkshire Regiment: Arthur Tinsley Sissons to be Surgeon-Lieutenant and to be borne as Supernumerary whilst doing duty with the Yorkshire Volunteer Infantry Brigade Bearer Company (dated April 4th, 1903).

VOLUNTEER INFANTRY BRIGADE BEARER COMPANIES.

Yorkshire: The appointment of Arthur Tinsley Sissons, which was announced in the *London Gazette* of April 3rd, 1903, is cancelled.

WAR OFFICE CHANGES.

The recent changes which have been made in the *personnel* of the War Office, besides being a matter of national interest, directly concern the army as a whole and with it army medical administration. The disclosures of the late War Commission have naturally aroused a strong feeling of indignant surprise not altogether unmixed with alarm. Whether the new appointment of Mr Arnold Forster as War Minister and of Mr. Bromley-Davenport as Financial Secretary to the War Office will be followed or not by those radical reforms that are called for remains to be seen. But Mr. Arnold-Forster has played a conspicuous part as an army critic and reformer and he will now have an opportunity of giving effect to some of those drastic changes of which he has so long been an advocate. What is obviously wanted at the War Office at the present time is a strong man but not a strong party man. As regards Mr. Brodrick it may be safely said that he undertook the most difficult task that could fall to the lot of any Minister at the time when he became the head of the War Office. As far as the medical service, at any rate, is concerned, it must be admitted that he has made very strenuous exertions to render it efficient.

Major M. T. Yarr, R.A.M.C., will, it is said, be appointed medical officer on the staff of Lord Lamington, the new Governor of Bombay. Major Yarr has given a great deal of time and attention to the study of ophthalmology and his services to the army as an expert in this direction have been of much value.

HOSPITAL ACCOMMODATION AT DEOLALI.

The proposals for additional hospital accommodation at Deolali, says the *Pioneer Mail*, are being considerably reduced in view of the fact that in the near future a hospital train from stations in the Punjab and Bengal commands will be available and will doubtless be able to run through to Bombay, so as to deliver sick soldiers direct on board the ships without stopping at Deolali. There is also the fact that a hospital ship will probably be despatched from Bombay on three separate trips to England with 100 invalids each time, thus reducing the number of sick proceeding by ordinary troopship.

HOSPITAL EQUIPMENT FOR THE ARMY IN INDIA.

The *Pioneer Mail* of Sept. 18th states that a comprehensive scheme is now being worked out for revising the equipment of general hospitals, field hospital store depôts, and base hospital store depôts in the army in India.

NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund, held on Oct. 13th, Sir J. N. Dick, K.C.B., R.N. (retired), being in the chair, the sum of £45 was distributed among the several applicants.

The special corps dinner of the Royal Army Medical Corps is to be held on Oct. 21st at the Whitehall Rooms, Hôtel Metropole. Officers who have not yet notified their intention of being present are requested to do so without delay to the honorary secretary.

Correspondence.

"Audi alteram partem."

THE LUNG REFLEX OF ABRAMS.

To the Editors of THE LANCET.

SIRS,—The letter of Dr. Albert Abrams in THE LANCET of Oct. 10th, p. 1032, in which a recent annotation of your own[1] on the Cardiac Reflex of Abrams is supplemented by certain valuable observations, has prompted me to offer a few remarks on a kindred phenomenon which also bears the name of the same distinguished observer—viz., the lung reflex of Abrams.

There can, I think, be no doubt that notwithstanding the striking character of the work on this subject by the American physician and its signal importance in connexion with the diagnosis, the prognosis, and the treatment of many pulmonary conditions, it is but little known to the practitioners of our own country. I may add that for at least a year I have followed the practice of Abrams in eliciting the lung reflex on my patients and I am fully convinced of its value. There are two such reflexes: a reflex of dilatation and a reflex of contraction. In clinical work the former is the more important and generally useful. Briefly put, it consists in the fact that the lung has an *inherent* power of dilating, apart from the breathing forces or atmospheric pressure and this inherent capacity of dilatation can be readily evoked by simple stimuli applied either to the chest wall or to the interior of the nares.

Now it is evident that this inherent or essential expansibility of the lung is no newly propounded phenomenon. It was indeed affirmed long ago by Laennec who adduced many and ingenious facts, both physiological and clinical, to prove it. In his chapter on Spasmodic Asthma he remarks: "The study of respiration by means of auscultation furnishes us, both in health and disease, with still more numerous phenomena which leave no room to doubt that the lungs possess an innerent power of action, independently of the other powers of inspiration and expiration. ..... In regard to expansion its mechanism is so little understood that physiologists have been forced to admit in order to explain it a vital property under the name of *expansibility* or *expansile power*. Without investigating the probabilities of this theory, I shall here content myself with inquiring, as a matter of fact, whether the lungs are capable of an active expansion independently of that which they undergo from the effects of atmospheric pressure in following the dilatation of the walls of the chest during inspiration."[2] Such is the phenomenon which he goes on to prove. It was not, however, until recent years that anything like a satisfactory demonstration of the presence of broncho-dilator as well as broncho-constrictor fibres in the vagus was made by Roy and Brown and during the present year this seems to have been conclusively established by the work of Dixon and Brodie.[3] But it undoubtedly stands to the credit of Abrams to have proved at least seven years since by a simple clinical observation that the vagus must contain broncho-dilator as well as broncho-constrictor fibres.

Such an observation may be easily carried out as follows. The patient, stripped to the waist, is directed to lie on his back and after he has rested a few minutes and the breathing becomes as easy as possible the right edge of the superficial cardiac dulness is percussed out and marked with a dermograph. In like manner the upper and left edges of the superficial dulness are determined. The front of the chest is then briskly rubbed with a towel for a minute until a red glow is produced. On percussion now being made it will be found (normally) that the pulmonary resonance extends a considerable distance inwards beyond the dermographic lines. After waiting for from two to three minutes longer, the extension of resonance will have disappeared and the dulness will be restored to its original area. A similar phenomenon may be elicited at the basal borders of the lung. I have found in practice (although Abrams gives no instructions on the point) that the recumbent posture is the best, favouring as it does a restful position of the organs.

This reflex dilatation of the lung is due to the action of broncho-dilator fibres in the vagus, but when friction is made over the cardiac area also the dilatation is assisted by a simultaneous inhibition of the heart which causes a diminution in the amount of blood in the pulmonary capillaries. It was proved in the experiments of Dixon and Brodie that such a diminution causes increased distensibility of the lung.

The lung reflex of dilatation can also be produced by the inhalation of irritant vapours, such as ammonia, by plugging the nares with cotton-wool, and by vigorous percussion over the epigastrium. It would appear, however, that irritants commonly acting in the nose may produce either the lung reflex of dilatation or that of contraction, according as the irritant selects the broncho-dilator or the broncho-constrictor fibres of the vagus. Many cases of asthma are due to such irritation of the broncho-constrictors and it seems likely that certain purely emphysematous conditions are produced contrariwise. In either case the application of cocaine to the nasal cavities inhibits the phenomenon. In the experiments of Dixon and Brodie already referred to curious discrepancies were often obtained in different animals. Thus in the dog and rabbit direct vagal stimulation produced bronchiolar constriction, whereas in the cat it usually produced dilatation which lasted all the time the stimulus was applied, though many variations were found in the latter animal, such as an initial rapid constriction or first a relaxation and then a constriction.

Abrams has also shown that there normally exists in the lung certain areas more or less "atelectatic" in character. Such areas are specially marked just by the breast-bone beneath the clavicles and towards the angles of the scapulæ. These can be dispelled by repeated deep inspirations. A blow struck near the manubrium increases the atelectatic area there by causing the lung reflex of contraction, while the atelectasis so produced is immediately dispelled by a blow struck over the epigastrium. If the skin be previously irritated over the part or the nasal mucosa be cocained this reflex of contraction cannot be produced.

Sufficient has been said to show that in these reflexes we possess valuable clues to diagnosis and treatment. I have already made a considerable number of observations in which much light was shed on the state of the lungs by testing their response either in whole or in part to the normal reflexes and I believe that these reflexes ought to be tested as a matter of routine in the investigation of pulmonary and cardiac diseases, just as the reflexes are tested in the investigation of diseases of the nervous system. As regards treatment they yield beyond doubt a scientific basis for the practice of counter-irritation. A counter irritant applied to any part of the chest wall not only induces but maintains a pulmonary dilatation underneath. The relief afforded in cases of bronchitis, pulmonary collapse, &c., by such topical means is thus (at least partially) explained. It has been shown by Abrams that hot poultices continuously applied over the broncho pneumonic lungs of children are the best means of counteracting the condition of collapse which is commonly set up. Again, the intranasal treatment of cases of asthma and emphysema may be clearly indicated by the reflexes which are excited; generally speaking, the application of cocaine temporarily tending to dispel either reflex. In like manner in regard to inhalations the reflex of contraction is dispelled by such agents as ether and chloroform, while that of dilatation is dispelled by nitrite of amyl.

I am, Sirs, yours faithfully,

Henrietta-street, W., Oct. 10th, 1903. A. G. AULD.

[1] THE LANCET, August 29th, 1903, p. 619.
[2] Laennec: Forbes's Translation, 1884, p. 376.
[3] Journal of Physiology, March, 1903.

THE VISION OF MYOPES.

To the Editors of THE LANCET.

SIRS,—It is often interesting to note the little devices by which patients try to overcome their disabilities. In this way we may sometimes get unexpected information. It is well known that myopes can improve their vision by partially closing the eyelids and that this improvement arises from the cutting off of the circles of diffusion; indeed, the word myopia is, of course, derived from two Greek words signifying to shut the eye. "Many myopes have so very much accustomed themselves to approximate the eyelids that it actually belongs to their physiognomy, and they persevere in doing so, even when the use of concave spectacles makes it superfluous," says Donders. I was under the impression that the best method a myope of low degree could adopt to see more clearly at a distance

without the aid of any optical contrivance was partially to close the eyelids. A patient some years ago taught me a method that was new to me and of which I have not yet seen an account. A boy, aged 17 years, with myopia of one and a half dioptres, showed me that he could greatly improve his distant vision by putting his finger on the external canthus of one eye and drawing the eyelids outwards. This observation I have confirmed on myself and others. If a + 2 D. spherical glass be put before an emmetropic eye so as to render it myopic, it will be found that the large letters of Snellen's types can be read at five metres much better by drawing out the upper eyelid by the finger than by approximating the eyelids in the ordinary way by the action of the orbicularis. The difference between the two methods is considerable; by the one vision equal to $\frac{5}{6}$ can barely be reached, by the other one can succeed after a little management in getting vision up to $\frac{5}{5}$ or even higher. When making this observation one can easily see that the horizontal strokes of the letters became more distinct when approximating the eyelids, and that both horizontal and vertical strokes, especially the latter, became plainer when the upper eyelid was stretched by the finger. This result was to me quite unexpected. One might perhaps have thought that the circles of diffusion could be cut off as well by one method as the other. A little experiment will, however, show at once the superiority of the method of drawing out the upper eyelid by the finger.

I am, Sirs, yours faithfully,

E. DONALDSON, B.A. T.C.D., L.R.C.S. Irel.

Londonderry, Oct. 10th, 1903.

PUBLIC VACCINATORS IN RURAL DISTRICTS.

To the Editors of THE LANCET.

SIRS,—As I am appointed to give evidence before the departmental commission of the Local Government Board on behalf of the public vaccinators in rural districts of England and Wales I should be glad to receive from those gentlemen information giving instances of excessive distances and any accurate statistics of the proportion of visits paid to the number of vaccinations effected. In all cases the various fees allowed to each vaccinator should be given. Correspondence may be addressed to me direct and must reach me within the next two weeks.

I am, Sirs, yours faithfully,

A. MAUDE.

Winterton House, Westerham, Kent, Oct. 12th, 1903.

THE M.D. DEGREE OF BRUSSELS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Oct. 10th Dr. N. Leonard gives a clear account of the general requirements of the M.D. Brux. examination but has surely omitted to state a fact which is generally not known and which detracts considerably from the value and status of the degree. That fact is that the M.D. Brux. confers no right to practise in Belgium, as it is not a "State University" examination and that it is therefore practically valueless from a legal point of view. The Belgians themselves take the "State degree," which is quite another matter.—I am, Sirs, yours faithfully,

P. A. NIGHTINGALE, M.D. Edin.

Ludgate-hill, E.C., Oct. 10th, 1903.

To the Editors of THE LANCET.

SIRS,—I have read with interest your annotation[1] on the M.D. degree of Brussels. I have thought for many years that those who have received their medical education in London have a most distinct grievance against the University of London. May I quote my own case. Before the age of 17 I matriculated at the University and within a month or two of joining a London medical school I passed the preliminary scientific examination. I then found that to pass the intermediate examination I should have to acquire an intimate knowledge of inorganic chemistry, a subject of which I knew little or nothing and for which I had no particular aptitude.

I found, moreover, that the time I should necessarily have to spend in acquiring this special knowledge would lose me my position among my contemporaries and my right to compete for certain prizes. In the circumstances I abandoned the London degree altogether. After all but ten years of practice I can conscientiously say that on no single occasion I can recall would such knowledge of inorganic chemistry as the University requires have been of the slightest use to me. I am, Sirs, yours faithfully,

Oct. 11th, 1903. F.R.C.S. ENG.

[1] THE LANCET, Oct. 10th, 1903, p. 1030.

FEVER AND CONVULSIONS DUE TO ASCARIDES

To the Editors of THE LANCET.

SIRS,—In regard to your recent annotation upon the above subject[1] and the subsequent correspondence thereon, may I point out that, owing to the almost universal presence of these parasites amongst the natives of India, this is a matter which has already received the careful attention of officers of the Indian Medical Service. One of the commonest causes of slight attacks of fever in that country is the presence of ascarides and, further, the most extraordinary and misleading symptoms are undoubtedly due to the presence in excessive numbers of this worm or to the wonderful journeys undertaken by this enterprising animal. If your readers will consult the writings of the late Norman Chevers or the files of the *Indian Annals of Medicine*, *Madras Quarterly Journal of Medical Science*, *Indian Medical Gazette*, &c., as well as the Transactions of the S. I. Branch of the British Medical Association they will find how thoroughly the matter has been investigated in that country. I myself believe that there is no room for doubt that this parasite is capable, by continued pressure, of forcing a passage through various tissues. *Per contra*, I do not believe in the "toxin" theory, which, by the way, is much older than the article by Dr. Wettendorff referred to in the original note.

The foregoing affords another instance of what is an undoubted fact—viz., that a large number of what are still regarded as being moot or as being fresh points, especially in "tropical" medicine, have long ago been investigated, discussed, and settled in India, as a careful study of the medical literature of that country, including many scarce and unattractive-looking "reports," made clear to me some years ago. So, also, as regards treatment, one too often sees methods or medicines recommended as original which have years before been tried and adopted or rejected in India. I had collected many examples of this kind of error with a view to ultimate publication, but for several reasons, of which ill health is perhaps the most effective, I cannot expect to accomplish that which I had planned. Fortunately there is no lack of men in the Indian Medical Service well able to undertake and to complete the task and I have great hopes that some officer of that service will devote himself to the printed records of medical work in India with a view to demonstrating the hidden wealth that is contained therein.

I am writing to the editor of the *Indian Medical Gazette* to suggest the publication of a special "Intestinal Parasites" number, which would, I feel certain, furnish most interesting reading and afford a means by which many of the accounts of the ascaris lumbricoides and the symptoms to which its presence give rise contained in British text-books could be both amplified and made more correct.

I am, Sirs, yours faithfully,

A. E. GRANT,

Ennore, Boscombe, Oct. 11th, 1903. Major, Indian Medical Service.

MEDICAL ACTS AMENDMENT BILL.

To the Editors of THE LANCET.

SIRS,—I am requested by the council of the Association of Physicians and Surgeons of the Society of Apothecaries, Limited, to draw your attention to the following resolutions on the above-mentioned subject:—

At the September meeting of the council of the Association of Physicians and Surgeons of the Society of Apothecaries Limited, it was resolved that in the opinion of this Association no Medical Acts Amendment Bill can be considered satisfactory which does not include the following provisions:—

1. That all persons registered under the Medical Act of 1858 in respect to qualifications to practise medicine shall henceforth be described as physicians and all persons registered in respect of qualifications to practise surgery shall henceforth be described as surgeons.

2. That all persons registered under the amending Act and under the Medical Act of 1886 shall be described as physicians and surgeons.

[1] THE LANCET, Sept. 26th, 1903, p. 898.

3. That the annual registration certificate shall state that the person mentioned thereon is entitled to practise medicine or surgery (either alone or in conjunction with midwifery) or medicine and surgery and midwifery, as the case may be.

4. That the title of Doctor may be used by all registered medical practitioners who are entitled under the Amending Act to describe themselves as physicians or as physicians and surgeons.

It was also resolved: That this Association will actively oppose any Bill not containing provisions 1 and 2.

While doing so, I should like also to point out that we have the opinions of the leading medical journals in favour of our contentions.[1]

The present condition of the law renders possible a repetition of the grave scandal which arose from the prosecution of the late H. Kingsley Hunter, L.S.A., by the General Medical Council for using the title "physician." A society of Conjoint Board diploma-holders was, I believe, recently dissolved and I should like to mention that this association is working in the same direction as the late society and would welcome Conjoint men as extra members in furtherance of our common interests. Finally, may I ask all Licentiates of the Apothecaries' Societies who have not already done so to fill up and to send to me their forms of application for membership without delay. All subscriptions date as from Oct. 1st.

I am, Sirs, yours faithfully,

A. RIVERS-WILLSON,
Treasurer and Acting Secretary.

42, Wellington-square, Oxford, Oct. 10th, 1903.

THE KING'S SANATORIUM.

To the Editors of THE LANCET.

SIRS,—I think I may fairly claim the privilege of being allowed to reply in your columns to your criticism of the article which appeared from my pen in the *Health Resort* for October dealing with the King's Sanatorium. You quote my words as follows: "Every physician who has had the opportunity of comparing the results of treatment upon the chalet and room principles will accept the following statement: Incipient cases are cured in 25 per cent. less time where chalet patients are concerned than is the case where patients occupy rooms," and you add that you feel sure that this statement is not correct and that you have derived your information from those who have had practical experience. In making this statement you first admit that you are not speaking from your own experience, but you seem to imply that your information has been derived from those who have had practical experience, *including the opportunity of comparing the results achieved by the chalet and room systems respectively*. It is possible, however, that you mean to say that your information has been derived from those having general experience of the treatment of phthisis. My sentence, however, referred exclusively to physicians who have had under their immediate supervision and control for a considerable period patients treated upon both systems. The number of such is strictly limited, and the opinions of physicians who have not had the dual experience must necessarily be theoretical. You allow that the chalet or hut system may be preferable when patients not exceeding 20 in number are treated. I think I am familiar with every sanatorium possessing chalet accommodation exceeding 12 beds, and I have reason to believe that in every case those in control are enthusiastic as to the advantages of the system; but since there are only two sanatoriums in this country possessing a considerable number of chalets, any statement such as the one you make to the effect "that the difficulties in administration and nursing are so great that the advantages of the huts are far over-shadowed by the discomforts inseparable from a large number of chalets scattered over a considerable area of ground at any rate in this country" must be a pure surmise on the part of theorists devoid of experience, unless it arises directly from a physician having charge of one of these.

You speak of the difficulties of nursing and administration, but a phthisical patient in the incipient stages of the disease seldom requires the services of a nurse when undergoing the open-air treatment. At Nordrach a trained nurse was entirely unknown at the time when the reputation of the sanatorium method of treating consumption was being made, and at many similar institutions both in this country and elsewhere a rule is made to exclude as far as possible advanced cases, and to provide for those who do not require the services of a nurse, and it is generally agreed that this is the best policy. Moreover, patients of the poorer classes require little service as they can wait upon themselves. I pointed out in my article that where the middle-class patients are concerned an allowance of 15 per cent. must be made in respect of the cost of service where the chalet system is adopted.

You state that the method I adopt of arriving at my figures is singular, and that you greatly doubt whether they would bear investigation, but you make no attempt to refute them, and as they were based upon personal experience I confidently challenge you to prove their inaccuracy. My statement was to the effect that a sanatorium on the chalet system to accommodate 100 patients can be established for as little as £10,000. Chalets completely equipped with furniture can be provided for a sum of less than £50 each. I can show you many suitable sites for a sanatorium on high ground, within a sufficiently easy reach of a water company's works from which a water-supply can be obtained by meter, the freehold of the land being available at prices varying from £10 to £50 per acre. 12 acres will suffice for the accommodation of 100 patients, and the administrative block, with dining-hall, staff accommodation, kitchens, &c., can be built and equipped for £3000 or less. You find much fault on a question of taste as to the title of my article and the use of the word "palatial" in connexion with the King's Sanatorium. As to the first, I maintain that the facts justify the use of the title and as to the second the epithet is not mine, but was quoted from the announcements circulated by a press agency and inserted in the daily papers to the effect that the building was to be "of a palatial character." The statement as to the cost was quoted from the *British Medical Journal*, and I have every reason for the assumption that each of these announcements referred to originated from authorised sources, and it is in any case certain that they were never contradicted by those in a position to correct them had they been inaccurate. If my contentions are reliable the matter is surely one of grave public importance, and therefore I regard it as a duty from which I have no right to flinch to bring the matter before those who are concerned in the provision of accommodation for the phthisical poor.

You conclude your criticism by expressing the hope that you have said sufficient to indicate that my contentions are unpractical and unscientific, but since, as I have said, they are based upon personal knowledge and extended experience your terms "unpractical" and "unscientific" are surely inappropriate.

I am, Sirs, your obedient servant,

Strand, W.C., Oct. 13th, 1903. CHARLES REINHARDT.

THE CHRISTIAN HOSPITAL OF CHICAGO.

To the Editors of THE LANCET.

SIRS,—There appeared in THE LANCET of August 8th, p. 416, an annotation concerning an institution known as the Christian Hospital of Chicago founded upon information for which I was responsible. Severe strictures were passed upon the methods of management of the said institution and reflections were made upon the action of certain medical men, and especially upon that of a distinguished surgeon of Chicago, for allowing their names to be made use of. The surgeon in question promptly declared in all the principal medical journals of the United States that not only had he no connexion whatever with the Christian Hospital but that he had put the law into motion against the promoters of the swindle for illegally using his name. When the first part of the story was sent I was unaware of the outcome of the affair and am only sorry that when the truth was made public I did not send a contradiction to THE LANCET.

I am, Sirs, yours faithfully,

Oct. 3rd, 1903. A NEW YORK CORRESPONDENT.

LONDON HOSPITAL MEDICAL COLLEGE.—The following is the result of the recent examinations for entrance scholarships: Price entrance science scholarships: 1st, £120, Mr. W. H. Palmer; 2nd, £60, Mr. J. E Scudamore; and 3 d, £35, Mr. J. R Johnson. Price scholarship of £60 in anatomy and physiology (open to students of Oxford and Cambridge): Mr. H. S. Souttar, University of Oxford. Proxime accessit honorary certificate: Mr. H. L. J. Austin, University of Cambridge.

[1] THE LANCET, June 24th, 1899, p. 1725; Brit. Med. Jour., Jan. 28th, 1899; Medical Press and Circular, Nov. 7th, 1900.

POST-GRADUATE WORK ABROAD.

III. VIENNA.[1]

(FROM OUR OWN CORRESPONDENT.)

FOR many years and up to a period which is not yet very remote Vienna was the great centre of attraction for medical men desirous of gaining additional knowledge in the various branches of theoretical and practical medicine. This was especially the case in the early part of the second half of the nineteenth century when the Medical School of Vienna was under the influence of teachers whose talents and discoveries had made their names known all over the world, but most of the great men of those days have now passed away and during the last 20 years foreign medical men have shown less inclination to study there. There was a time when the number of English-speaking graduates attending the courses of instruction was as high as 400 in a year, most of them being Americans, whereas the British subjects among them rarely exceeded 10 per cent., and of these the majority came from Scotland. In the last summer term, however, the English-speaking graduates studying in Vienna are described in the official returns as 86 Americans, 18 English, and seven Australians. One great cause of the popularity of Vienna in former years was the circumstance that it was there that many important branches of medicine were either originated or at least greatly improved and men who had acquired their knowledge of these subjects in Vienna were in their turn to be found as the original teachers of them in the educational centres of almost all countries. Laryngoscopy, cystoscopy, otoscopy, dermatology, and ophthalmoscopy may be taken as examples of these special branches, but Vienna of course has no monopoly of them now. Another cause of the decline of post-graduate study by foreigners in Vienna is the great improvement in medical teaching and the concomitant increase in facilities for study in other countries during the last 20 years. The progress of discovery has multiplied methods of research and has given a great impetus to laboratory work. Bacteriology, for instance, is a science which can only be prosecuted by highly trained observers liberally provided with expensive appliances, and in this as well as in other portions of the scientific field no amount of talent and pains will make up for want of money. It is therefore only in countries where the Government has been liberal in erecting buildings and in providing good laboratories that bacteriologists can work successfully. Universities in possession of excellently equipped laboratories, such as Berlin University, have therefore become the leading centres of medical education and the favourite places for post-graduate study, whilst Vienna, with its out-of-date hospitals and its poor laboratories, has fallen into the background. But even in this stage of decadence important work has been done in Vienna. The discovery of the anæsthetic action of cocaine will always have a place in the history of medicine, although few persons seem now to know or to remember that the credit of it was due to Dr. Karl Koller who, even after making this valuable contribution to materia medica, was unsuccessful in an application which he made for a mere assistantship at a Vienna clinic, whereas Schleich's mixture, the efficacy of which depends on this property of cocaine, is everywhere spoken of. And even in the field of bacteriology some excellent work has been done in Vienna, notwithstanding the absence of proper institutes; Professor Gruber's researches on agglutination may be mentioned in this connexion. Vienna has no doubt been surpassed by Berlin in the matter of splendid hospitals and laboratories, but even with its old hospitals it still continues to be an excellent place for post-graduate study, especially for acquiring experience and facility in diagnosis. The concentration of an immense number of patients on a comparatively small area, as is the case here, affords unrivalled opportunities for post-graduate study, as will sufficiently appear from an enumeration of institutions lying close together in the Vienna medical quarter. There is first of all the General Hospital (Allgemeines Krankenhaus), the largest hospital on the continent, a vast building erected in the year 1784 and having 2000 beds. It contains three clinics for internal diseases, two for surgical diseases, two for eye diseases, two for syphilis and skin diseases, two for obstetrics and gynæcology, one for mental and nervous diseases (there is a second clinic for mental diseases in the lunatic asylum in the immediate vicinity of the hospital), two for ear diseases, and one for laryngology. The hospital also contains five wards (Abteilungen) for internal diseases, three for surgical diseases, and one for syphilis. The number of beds in a clinic or an Abteilung varies from 100 to 150. More than 25,000 in-patients are under treatment in this hospital every year and the annual number of out-patients exceeds 120,000. The number of post-mortem examinations performed in the pathological institute of the hospital is over 3000 yearly. In the hospital grounds there are also three obstetric clinics in which there are over 3000 births a year. Vienna has therefore always enjoyed the reputation of being an excellent place for the study of gross pathological anatomy and obstetrics. By the so-called Touchircurse (courses for digital exploration) a valuable opportunity of attending a large number of cases of labour in the short space of four weeks was given to foreign medical men and it is a pity that these facilities have now been to some extent restricted. Vienna is also a very good place for studying at least the pathological part of forensic medicine, because over 3000 forensic post-mortem examinations are performed annually in addition to the 3000 already mentioned as taking place annually in the pathological institute of the General Hospital. Less than three minutes' walk from the General Hospital there is a large institution for the treatment chiefly of out-patients—the Poliklinik, where courses of instruction in all branches of medicine are given during the whole year by a large staff of professors and *privat-docenten*. The number of out-patients is over 40,000 a year and there are also 100 beds for adults and 40 for children. About the same distance from the General Hospital there is also the Lunatic Asylum with 800 beds, the Foundling Institute (where courses of instruction on vaccination and the medical questions connected with wet-nursing are given), and the St. Anna Children's Hospital with over 100 beds and accommodation for infectious diseases, while on another side and at no greater distance are the nearly new institutes for theoretical medicine (anatomy, physiology, hygiene, &c.). For the undertaking of scientific research arrangements have to be made with the leading professors of the respective institutes; in such cases no fees have to be paid but only the expenses incurred in connexion with the work itself. A list of all the courses of instruction given this year would occupy too much space and it will perhaps be sufficient to mention that courses on the following subjects are given:—On topographical anatomy (Dr. Tandler); on histology and embryology (Dr. Schaffer and Dr. Rabl); on experimental pathology (Dr. Gaertner, Dr. von Basch, and Dr. Biedl); on serum-therapeutics (Dr. Kraus); on pathological anatomy (Dr. Albrecht, Dr. Schlagenhaufer, Dr. Ghon, Dr. Stoerk, and Dr. Kretz); on pathological histology and bacteriology (by the same teachers); on percussion, auscultation, and internal diseases (Dr. Heitler, Dr. Pal, Dr. Mannaberg, Dr. Czyhlarz, Dr. Kovács, Dr. Wechsberg, Dr. Donath, Dr. Türk, Dr. Schmidt, Dr. Steyskal, Dr. Weinberger, and Dr. Reitter); on diseases of the stomach (Dr. Oser, Dr. Pick, Dr. Schütz, Dr. Katz, and Dr. Schiff); on diseases of the heart (Dr. Heitler, Dr. Ortner, Dr. Biach, and Dr. Braun); on diseases of the blood (Dr. Türk and Dr. Schwarz); on nervous diseases (Dr. Pfungen, Dr. Chvostek, Dr. Benedict, Dr. Frankl-Hochwart, and Dr. Erben); on laryngology and rhinology (Dr. Chiari, Dr. Roth, Dr. Koschier, Dr. Hajek, Dr. Grossmann, and Dr. Rethi); on hydrotherapeutics (Dr. Winternitz and Dr. Strasser); on surgical diagnosis and therapeutics (Dr. Fraenkel, Dr. Schnitzler, Dr. Clairmont, Dr. Ranzi, Dr. Pupovac, Dr. Albrecht, Dr. Frank, Dr. Funke, Dr. Foederl, and Dr. Ullmann); on surgical operations (by the same teachers); on diseases of the uro-genital system (Dr. Frisch and Dr. Zuckerkandl); on diseases of the ear (Dr. Politzer, Dr. Urbantschitsch, Dr. Bing, Dr. Pollak, Dr. Gomperz, Dr. Alt, Dr. Hammerschlag, and Dr. Biehl); on diseases of the eye (Dr. Bergmeister, Dr. Reuss, Dr. Elschnig, Dr. Klein, and Dr. Salzmann); on ophthalmoscopy (Dr. Bergmeister, Dr. Königstein, Dr. Elschnig, Dr. Klein, Dr. Müller, Dr. Wintersteiner, Dr. Sachs, and Dr. Fröhlich); on obstetric operations (Dr. Halban, Dr. Bürger, Dr. Peham, Dr. Keitler, Dr. Peters, and Dr. Braun-Fernwald); on gynæcological operations (Dr. Lihotzky, Dr. Dittel, Dr. Mandl, and Dr. Fabricius); on the diseases of children (Dr. Kassowitz, Dr. Frühwald, Dr. Monti, Dr. Unger, and Dr. Eisenschitz); on orthopædic surgery (Dr. Lorenz); on diseases of the skin (Dr. Mracek, Dr. Finger, Dr. Ehrmann, Dr. Spiegler, Dr. Ullmann, Dr. Matzenauer,

[1] No. I. (Paris) and No. II. (Berlin) were published in THE LANCET of Sept. 12th (p. 781) and Sept. 26th (p. 912), 1903, respectively.

Dr. Vajda, Dr. Grünfeld, Dr. Nobl, and Dr. Weidenfeld); on the use of the Roentgen rays (Dr. Schiff and Dr. Holzknecht); on mental and nervous diseases (Dr. Fritsch, Dr. Hollaender, Dr. Hirschl, Dr. Redlich, Dr. Elzholz, Dr. Sölder, Dr. Bischof, and Dr. Halban); on physiological and pathological chemistry (Dr. Mauthner and Dr. Fraenkel); on hygiene and bacteriology (Dr. Schattenfroh and Dr. Grussberger); and on forensic medicine (Dr. Kolisko and Dr. Richter).

In Vienna the cost of living is higher than in German cities. In the immediate vicinity of the General Hospital there are a great number of English "pensions" where the charges are from three to six florins a day, but many students prefer to live in single furnished rooms, the cost of which is from 15 to 40 florins a month, and to have their meals *à la carte* in a restaurant, except breakfast which is taken at one of the numerous coffee-houses, where also English and American journals may be read. Residence in Vienna is especially enjoyable in the summer season, when spare time may be spent in making excursions to the pleasant mountain resorts in the vicinity.

Vienna is the only city in which students can attend a complete medical curriculum without having to lose time in proceeding from one lecture to another. The courses for post-graduates are delivered during the whole year. The language of the lecturers is German but many teachers give special English courses and in many courses a short explanation is given in English if English students are attending them. The courses are mostly practical and the theoretical explanations given are as short as possible. Austrian patients submit to clinical examination with more willingness than is the case in other places. In some courses the students are permitted to perform small operations on patients. On account of the large number of subjects in the pathological institute Vienna is an excellent place for courses of operations on the dead body. The duration of most of the courses varies from four to six weeks, the fees for a single course varying between 15 and 50 florins (£1 10s. to £4). The number of attending students is generally limited to 10 or 15, in some courses (practical midwifery) even to four students. It is possible to make arrangements for private courses for a few persons at a special payment. Some courses are so overcrowded that it is necessary to make arrangements weeks or months before the beginning in order to get entrance. Gratuitous information with respect to courses of instruction, lodgings, and such subjects may be obtained from Dr. B. Beer, IX. Maximilianplatz 13. Details as to lectures and laboratory courses are supplied by the Decanat of the medical faculty of the University.

Obituary.

WILLIAM JOHNSON WALSHAM, M.B., C.M. ABERD., F.R.C.S. ENG.,

SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

St. Bartholomew's Hospital and its Medical School have suffered great losses during the present year. Dr. P. H. Hensley, Mr. H. T. Butlin, and Professor Howard Marsh have resigned since last spring, and Mr. W. J. Walsham's untimely death has now caused profound sorrow to the many generations of students whom he taught so assiduously and with such pleasure first anatomy and afterwards surgery.

Mr. Walsham was born in London on June 27th, 1847, the elder son of Mr. William Walker Walsham of Wisbech, Cambridgeshire, and of Louisa Johnson his wife. He was educated privately at Highbury under the Rev. Dr. Johnson and early in life showed so great a mechanical bent that he was apprenticed to the engineering firm of Messrs. Maudslay. But the early hours and the physical labour required in the "shops" soon proved too much for his strength and he was compelled reluctantly to turn his attention to less exacting work. He studied chemistry for a time and it was through this source that his thoughts were first turned towards medicine. Late in September, 1867, he was walking down Chancery-lane to enter himself as a student at King's College, but on the way he met a friend who gave him so glowing an account of St. Bartholomew's Hospital that he straightway turned round and entered his name there. He was at this time a year or two older than the majority of his fellow students and he at once demonstrated his intellectual superiority and his manual dexterity by obtaining the chief prizes in the dissecting room, the treasurer's or junior practical anatomy prize being awarded to him at the end of his first winter session in 1868 and the Foster or senior practical anatomy prize falling to his lot at the end of his second winter session in 1869. In 1869, too, he obtained the senior scholarship in anatomy, physiology, and botany, having previously gained the junior scholarship. In each of these four events Mr. Alban Doran was placed second. Walsham also obtained a prize dressership under Sir James Paget and in 1869 was awarded the gold medal given by the Society of Apothecaries for proficiency in materia medica and pharmaceutical chemistry and was admitted an L.S.A. He afterwards went to Aberdeen, as was then the custom of many St. Bartholomew's Hospital men, and graduated there in 1871 as M.B., C.M., with the highest honours and with special honours for his thesis, and he returned to London to take the M.R.C.S. Eng. on Nov. 17th, 1871. He was nominated by Dr. Francis Harris to act as house physician at St. Bartholomew's Hospital from May 1st, 1871, and this post he filled for nine months when he exchanged with Mr. Charles Irving and became house surgeon to Mr. Holmes Coote for three months. He then thought of going into private practice, but, an opportunity occurring, he was appointed assistant demonstrator of anatomy in 1872. In the next year he became full demonstrator, a position which he held until 1880, and the museum still contains some of his exquisite dissections. In 1880 he became demonstrator of practical surgery, in 1889 he was appointed lecturer on anatomy, and in 1897 he exchanged this lectureship for the post of lecturer on surgery. Mr. Walsham was elected to the office of assistant surgeon on March 10th, 1881. He was immediately afterwards appointed demonstrator of orthopædic surgery in succession to Mr. Howard Marsh and this position he held with immense advantage to the pupils in this department until his appointment as full surgeon to the hospital in 1897. He was elected surgeon to the Metropolitan Hospital and to the Royal Hospital for Diseases of the Chest in 1876 and he held the latter position for about eight years. At the Metropolitan Hospital he took charge of the department for diseases of the throat and he was elected to the position of consulting surgeon in 1896. Later, in the capacity of consulting surgeon, he became attached to the Sevenoaks Hospital for Diseases of the Hip and to the Bromley Cottage Hospital.

At the Royal College of Surgeons of England Mr. Walsham was elected a Fellow after examination on June 10th, 1875. He served the office of examiner in anatomy on the Conjoint Board from 1892 to 1897 and was a member of the Court of Examiners from 1897 to 1902 but found the duties of the latter office so trying that he did not seek re-election at the expiration of his first term of office. He filled several sectional offices in the British Medical Association and he was a member of the chief London medical societies.

During the present year Mr. Walsham had not appeared to be quite in his ordinary good health and it is certain that he had felt some failure of his usual energy, for he had made arrangements with his assistant surgeon, Mr. D'Arcy Power, to be permanently relieved of his night work at St. Bartholomew's Hospital, but it was not until within a few weeks of leaving for his holiday that some of his most intimate friends recognised that he was really ill. He was then advised to take a prolonged rest and left for Switzerland. He stayed for three weeks at Grindelwald but did not derive so much benefit from the mountain air as he had anticipated, and on August 27th he went to Wiesbaden. There, on the following day, serious symptoms of breathlessness developed. He was attended most assiduously by his brother, Dr. Hugh Walsham, and by Dr. H. Pfeiffer, whilst on two occasions Sir Lauder Brunton travelled from Switzerland to see him. The symptoms showed no signs of abatement and at his own earnest desire he was brought to England on Sept. 25th. His friends, Sir Lauder Brunton, Dr. J. F. Goodhart, and Dr. F. de Havilland Hall, were unceasing in their attentions, but in spite of all that could be done he sank gradually and died peacefully in his sleep in the early morning of Oct. 5th. He married in 1876 Edith, the elder daughter of Joseph Huntley Spencer of Hastings, and had no family.

Perhaps the most marked features of Mr. Walsham's life were his fixity of purpose and his untiring industry. In physical appearance he must very closely have resembled his great predecessor at St. Bartholomew's Hospital, Dr.

WILLIAM JOHNSON WALSHAM, F.R.C.S.

William Harvey, the discoverer of the circulation of the blood. Indeed, the description of the one applies equally to the other. "A man of the lowest stature ..... rapid in his utterance, choleric." Yet he was beautifully made and in perfect proportion; his hand so small that he could easily pass it through an incision where another could not introduce more than three fingers, and he once wrote a paper to demonstrate the advantage of diagnosis by passing the whole hand into the rectum. His literary efforts were numerous and when he became busy with practice he still found time to give many addresses, some of which were published separately, whilst his works on diseases of the nose and deformities of the foot are well known. "The Theory and Practice of Surgery," which has reached an eighth edition, kept him fully employed, and there is too much reason to fear that the work of preparing the last edition proved the breaking strain for his powers already overworked. As a surgeon he was a neat and, when occasion arose, a daring operator, always ready to try new methods but usually falling back upon those to which he had accustomed himself. An accomplished mechanician he rarely troubled to use complicated appliances and was content to carry out his end with the simplest tools. His knowledge of anatomy often stood him in good stead and to the last the dissection of a difficult tumour or the avoidance of unnecessary bleeding by a knowledge of the position of the vessels was a source of unfailing pleasure to him. But if he was an excellent surgeon he was even more excellent as a teacher. A long training in the dissecting rooms and a prolonged tenure of office in the out-patient room made him a teacher of the highest order and enabled him to make all things clear to his hearers with a minimum of exertion on his own part. His hospitality and his social abilities were also of a very high order and gained him the respect and friendship of a large circle. He was especially prominent as a Freemason and attained to the position of Past Grand Deacon; he was very actively concerned in the founding of the Rabere Lodge, the first of the lodges established in connexion with the great metropolitan hospitals, and also in the founding of the William Harvey Chapter, of which he was, at the time of his death, one of the principal officers.

Mr. Walsham was buried at Highgate Cemetery on Oct. 9th, the funeral being attended by a large number of his colleagues and friends. There was also a memorial service in the church at St. Bartholomew the Less which was literally full to overflowing and was conducted in the presence of the whole staff of the Bromley Cottage Hospital who came up to London to testify to the respect in which they held their friend and consulting surgeon.

THOMAS JAMES PICKBURN, M.D., C.M. ABERD., M.R.C.S. ENG., L.S.A.

DR. THOMAS JAMES PICKBURN died suddenly at his consulting rooms, College-street, Sydney, just after seeing a patient. He had been in failing health for some time. Dr. Pickburn was born in London in 1846 and was the son of Mr. J. T. Pickburn, founder and original proprietor of the London *Daily Chronicle*. His education was begun at the Aylesbury Grammar School and completed at the University of Aberdeen. His medical studies were pursued at St. Bartholomew's Hospital, London. After a successful course the deceased obtained the diploma of L.S.A. Lond. in 1868 and the degree of M.B. and C.M. Aberd. in the same year. Dr. Pickburn arrived in New South Wales some 35 years ago and began the practice of his profession at Braidwood. He was subsequently at Terara and was also assistant to the late Dr. Steer Bowker, M.L.C., at Newcastle. After spending a year in practice at Walcha he left for England where he took his M.D. degree. Upon his return to Sydney Dr. Pickburn established himself in College-street, where he practised for the past 25 years. For the last six years he was in partnership with Dr. A. Maitland Gledden. The deceased gentleman was for some years honorary physician at St. Vincent's and Sydney Hospitals. He was twice married and leaves a widow and a numerous family.

LONGEVITY.—The local newspapers report that a Mrs. Ann Howells, of Tonna, near Neath, is 106 years of age.

THE ELEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE FOURTH SECTION.

Lead Poisoning.

AFTER the lengthy discussion on ankylostomiasis the Fourth Section took in hand the question of lead poisoning. Seven reporters had been appointed and their reports were printed separately. In fact, this was the method, or rather the lack of method, that prevailed throughout. On hearing that various reporters had been appointed to deal with each question it was natural to suppose that, for instance, the seven reporters on lead poisoning would issue a joint report giving the points and the recommendations on which they were all agreed. Instead of this each reporter issued a report of his own. It represented only his individual opinion and naturally there was a great deal of repetition, for the various reporters frequently travelled over the same ground. Then the section, instead of having to vote on some motions that represented the joint opinions of the reporters, found that it had to select from seven different sets of motions or recommendations. At the same time, it must be confessed that this was probably inevitable, as the reporters lived too far apart to be able to meet and to agree. In this case, for instance, two of the reporters live at Liège, while the other five reside at Bordeaux, Turin, Arnsberg in Germany, Newcastle-on-Tyne, and Selmeczbanya in Hungary.

Dr. THOMAS OLIVER in his able report presented a good description of the position of the problem in England and the recent attempts to improve the condition of the lead glaze in the hardware and porcelain making. Addressing the section, Dr. Oliver pointed out the similitude of the symptoms of lead colic and those of appendicitis. Then he explained that while employed in works where lead was used the workmen seemed to acquire an immunity which they lost if they ceased to work for some time, and therefore fell ill on returning to work. He agreed with the proposals which other reporters had made that all persons engaged in the manipulation of lead should be examined medically. If once attacked by the effects of lead such persons when cured should not be allowed to return to the work as they acquired a predisposition to further illness of this nature. The anæmic also should be forbidden to work in trades where lead was employed. When appointed by the Home Secretary to investigate the matter in Staffordshire he had recommended that only leadless glaze should be made. In this he was strenuously opposed by the manufacturers, yet he could demonstrate that it was quite practical at least in many if not in all cases. The manufacturers maintained, however, that it could not always be done as cheaply as when lead was used. In France, where the question was more advanced than in England, there had been a strong agitation in favour of zinc. The evidence given in England by the house painters and decorators showed that they were still in favour of white lead, but in many cases the French law prohibited the use of lead and the French engineers found that oxide of zinc was as good. He thought that the use of special drinks should not be encouraged as it produced a false sense of security. Finally, Dr. Oliver alluded to the prevalence of miscarriages among the women employed in the manipulation of lead.

Dr. FIRKET, reporter from Liège, spoke as to the necessity of improving the methods of drawing away the vapours or smoke from the smelting works.

Dr. THISQUEN, the other reporter from Liège, pointed out that in Belgium statistics seemed to show that miscarriages were much more frequent among women who worked where lead was used than among those employed in the linen weaving or flax trades. But in the former case only married women were questioned, while in the latter case the unmarried women were included, and these had good reason not to record all the cases of miscarriage that occurred. It was a matter on which trustworthy statistics could not easily be obtained.

Dr. GLIBERT spoke as to the danger of the zinc smelting works where sometimes half the workmen suffered from anæmia. Yet these were people who lived in rural districts, worked in their own gardens, and ought to enjoy good health.

Also they were fairly well paid. But though the distillation of zinc was done as in the laboratories, the apparatus was not so carefully made. Leakages occurred and there was much smoke. In all this smoke there was oxide of carbon. The workmen, therefore, suffered from want of oxygen, and there was also arsenic in the ore. Then the lead and the zinc works were often side by side, so that what mischief the one failed to accomplish was caused by the other. Also there was a doubt as to what were the earliest symptoms of lead and zinc poisoning. A slight blue mark on the gum was not sufficient evidence. Mercurial poisoning and other causes produced this. The lead-like complexion might be due simply to insufficient washing, or the hæmoglobin might be lessened in the blood in proportion to the length of exposure to the influence of lead. Colic was by no means diagnostic. Cases of appendicitis had also been mistaken for lead poisoning. Therefore the recognition of the condition in the earlier stages was not always easy.

Some conversation ensued as to the presence of lead, zinc, and arsenic, and as to the category of workmen who suffered most in the smelting works, and then Dr. T. M. LEGGE, representing the British Home Office, made a very interesting speech. He first described the protective measures that had been adopted in England. The law facilitated the collection of information and yet they required still more light. Since 1895 every medical practitioner must notify all cases of lead poisoning or of poisoning from any other mineral. He was paid three francs for each notification. The managers of factories were also obliged to notify to the Home Office, but it was the medical attendant who decided whether the symptoms were sufficiently clear to justify such notification. In districts where lead was rarely employed and such cases did not often happen the local practitioner might be somewhat puzzled. To insure uniformity on all these points a memorandum was issued and sent to 2000 certifying surgeons. The latter had to examine all children under 16 years who wished to work. Dr. Legge had received in the course of four years 3000 notifications of cases of saturnine poisoning. Though Dr. Oliver thought there was at the present time a diminution in the number of cases it did not seem to Dr. Legge as satisfactory unless it continued for many years. He thought the only road of entrance for the poison was by the mouth, otherwise none of those who worked with their bare arms in lead all day long could escape. Nor was it due to dirt. It was the dust that should be suppressed. Carriage painters were poisoned by scraping off the dry paint. Nevertheless, respirators were not practical and many of the regulations suggested were old and of proved inefficacy. Dr. Legge's remarks were especially useful and appropriate when he described the independent positions of the surgeons who had to notify to the Home Office all cases of poisoning.

After some further discussion the section adopted a lengthy enumeration of precautions that should be taken. While at work it was urged that facilities should be provided for the frequent rinsing of the mouth and for gargling. More especially before eating should the mouth be carefully washed, as also the face, the hands, and the nails. Before leaving the works the workpeople should change their clothes and should not go home without first removing from their persons all trace of their work. In respect to diet the workers must avoid vinegar and acidulated articles, taking in preference that which was salt. Beer and alcohol must only be drunk in very small quantities. The workers must promptly seek medical advice even when only slightly indisposed. The factories and workshops must be kept scrupulously clean. The greatest precautions must be taken when dangerous substances had to be used. For the workpeople so engaged a dining room and a dressing room must be provided and this in a place well away from any injurious dust. All that was necessary for baths, for washing, gargling, cleaning of nails, changing of clothes, &c., must be provided. Neither eating nor drinking must be allowed in the works. The workpeople must be forced to take a complete bath at least once a week. Before employing anyone on the works the employer must demand a medical certificate of fitness. The medical men who examine the workers should be approved and authorised by the State. A special register must be kept to give a record of these medical examinations, and they should be renewed from time to time. No person should be allowed to continue working who presents symptoms of saturnine intoxication. Anyone who has suffered twice and severely from this cause should not be allowed to work where lead is used nor should any person who refuses to take the necessary precautions or who is addicted to drink be so employed. The above is but an abbreviation of the small pamphlet which was adopted as a sort of resolution. The following paragraphs represent what in England would be considered as resolutions and were also adopted :—

The Congress expresses the desire that a regular medical surveillance placed under administrative control should be rendered obligatory in all the industries where saturnine intoxication may occur and that the notification of these cases of intoxication should be compulsory.

Considering that the early diagnosis of saturnine intoxication is still surrounded with many difficulties the Congress expresses the desire that new investigations should be made in this matter and that the question be placed on the agenda of the next congress.

On the proposal of the French delegate, Dr. LEMIÈRE, the discussion on this subject was terminated by the adoption of this third motion :—

Seeing the poisonous character of all lead compounds the Congress desires that investigations should be made in view of suppressing, wherever possible, the use of lead and demands that every encouragement should be given to all researches which have for their purpose the discovery of inoffensive substances that could be utilised instead of salts of lead and all experiments having for their object the generalisation of their employment.

Over-pressure.

Professors of the universities of Brussels, Montpellier, Turin, and Berlin, Dr. DEMOOR, Dr. IMBERT, Dr. TREVES, and Dr. ZUNTZ, had each presented a report on the very important but complex question of excessive mental strain and overwork. It is so easy to speak of strain, pressure, and overwork, but it is much more difficult to define and to divide wholesome fatigue from injurious exhaustion. What are the physiological symptoms? How can they be detected in a manner that can serve as a practical basis for legislation? When and how can it be proved that there has been an abuse of human labour force?

Dr. R. H. SALTET, professor of hygiene at the Amsterdam University, opened the debate on this subject by seeking to establish a connexion between the calories of heat and the labour force of the individual. It was generally estimated that manual workers spent three-quarters of their wages for the essential needs of their existence. What out of this went to the production of animal heat? These biological facts might supply a basis to work upon.

Dr. TREVES of Turin dealt with some of the main arguments of his report. The first difficulty was to define fatigue, how did it affect the nerve centres that governed all the acts of the worker? They must not wait till the output decreased to say that the man was tired. There was the question of the difference of energy developed and that which was utilised. Some only used a fifth of their energy and some much more to accomplish identically the same task. This should be measured. The methods tried should be applied to different trades and thus they might establish scientifically what could and what could not be done without injury to health. All scientific men sought to reduce the hours of labour.

Dr. IMBERT of Montpellier briefly related the main contentions of his report. He also insisted on physiological methods of defining fatigue and thought that such means were available, though those employed outside the laboratory could not be very precise. Dealing with ordinary fatigue, not with over-pressure, it was noticeable that the majority of accidents occurred when the workers were tired. The workman's brain saw or was conscious of the danger and would act accordingly. Experimentally it could be demonstrated how much time was required for this sort of nerve telegraphy to work. If the man was tired it worked more slowly and sometimes not quickly enough to enable him to get out of the way or to do whatever was necessary to avoid the accident that threatened him. There was much to be learnt by collecting statistics relating to labour accidents, not merely per day but above all per hour. He had collected such statistics in regard to 2000 stone workers and 1500 transport workers and the diagrams showed that there were twice as many accidents towards the end as there were at the beginning of the day. He then spoke at length as to the alteration of the muscular movements and of the method of doing a particular piece of muscular work as fatigue gained upon the worker. In a march, for instance, they had first the light, bounding, elastic step and then the dragging step of the fatigued walker. This modification might be chronicled by the use of kinematographic photography. For this no scientific instrument or even scientific knowledge was required. In the kinematograph they might

find the means of recording and of proving the existence of over-pressure.

Professor ZUNTZ of the Berlin University thought that when fatigue was produced by excessive muscular effort there resulted a disturbance in the circulatory and respiratory systems. This was followed by trouble in the digestive and urinary organs and the most exact measure of the extent of the fatigue could be obtained by the comparative analyses of gaseous exchanges that took place before and after the work. They had to study the difference in the amount of the gases, the carbonic acid, the vapour and the secretions generally of the worker. The combustion of such gases increased in performing the same work when the worker was tired. The careful observation of the pulse, the increasing elongation of the systole, and the reduction of the diastolic pause were excellent criterions of fatigue. When they had a loss of weight caused by the fact that the activity of the digestive apparatus could not increase in the same proportion as the work done they had a clear proof that the work was excessive. When the enforced excess of work was very marked then it was the kidneys that should be more especially observed. The appearance of albumin and of cylindroids in the urine showed that there had been over-pressure, and if this be the only cause of these symptoms then they would generally and rapidly disappear when the patient was enabled to enjoy sufficient rest.

Mademoiselle J. JOTEYKO, M.D., demonstrator of physics at the Brussels University, spoke next and her observations were listened to with marked attention, for it was known that this lady had devoted much thought to the study of the subject before the section. Mademoiselle Joteyko first insisted that it was "the duty of all concerned not to allow persons to engage in work for which they were manifestly unfit." It was surprising how this obvious advice was very widely disregarded. Children should be examined while quite young with a view of determining what they were fit for. In such examination it was very necessary to take into account the condition of their nervous systems. For such purposes there already existed laboratories in Brussels, Paris, and Berlin. For instance, there were many trades which involved a special strain on the eyesight. Before entering these trades were the eyes of the person concerned tested? There was in this no difficulty, the eyesight could easily be tested. Then, also, those who worked by the piece could be carefully and usefully observed. Certainly the spirit of emulation tended to defeat the accuracy of such observations. Excitement and emulation might cause quite an exceptional amount of work to be done and this without any apparent strain. But this did not last. It was efficacious only in so far as it was exceptional. The workers soon settled down to a constant output under constant mental and physical conditions and then they could estimate whether this output was more than was good for them. Also they must take into account the effect of machinery; the rhythm of a machine was more injurious than muscular movements.

At this stage the discussion was adjourned and on its resumption Dr. DEMOOR of Brussels pointed out the great difference between the experiments made with the aid of instruments and machinery in a laboratory and every-day toil in a workshop or factory. Fatigue manifested itself in a score of different ways. To examine one or two details did not prove anything. If the economist showed there was a better output as a result of an eight hours day than of a ten hours day the physiologist would conclude that this was nature's law, but the physiologist judged from a totally different standpoint. To establish a comparison he would want to experiment on persons who had each of them the same strength, the same food, the same home, the same air, and, above all, the same psychological conditions. To get all this was quite impossible, but they had statistical evidence; there were the death-rate and sick-rate, only these were collective and did not deal with individual dispositions. From all this they must not conclude that nothing could be done; but the sociologist must not expect the physiologist to supply him with precise data that would apply to everyone and would enable the legislator to say so much work might be allowed and no more. The laboratory observations must be transported to the workshop. The medical attendant could estimate the vitality of the individual and say whether he was equal to the average strength necessary in each trade.

Dr. GLIBERT of Brussels argued that they might take it as a basis that if the production of animal heat exceeded the power of recoupment then injury was done. Maret had shown that in walking the expenditure was great at first, then it was reduced, and again later it was augmented. This was quite different from the work of a machine. They did not need individual statistics, but averages, and if on an average evil results accrued in a particular trade it was a clear proof that the hours of labour should be reduced.

Dr. DEJACE wanted to know what constituted capacity to labour. Medical men were asked for certificates to that effect. Of course, a child aged 14 years was not fit to do a pitman's work but he might do some other work.

Dr. IMBERT said that heat was a residue not a factor in movement. It was to be found at the cessation of the contraction of the muscles. A primitive energy had made the muscle contract. Work was an expenditure of energy which produced the exterior and visible labour. When the effort concluded the heat then occurred as a residue of the effort. They could not as scientific men give figures and say how many hours should be taken off from the week's work in different trades. The matter must be studied not in the laboratories but in the trades themselves. The investigator must quit his laboratory and go into the factory. He proposed that this should be done and reports as to the results should be submitted to the next congress.

Dr. TREVES replied that to some extent this had been done. A man manipulating a weight of ten kilogrammes for a fixed time showed no sign of fatigue. It was only when his nerve strength was tested that it became evident that he was affected. When set to do the same work with a six-kilogramme weight the nerve action was not affected.

Mademoiselle JOTEYKO observed that some were predisposed to consumption; it was evident that they should not be allowed to work where there was a great deal of dust. Further, she protested that mathematical calculations should not be set aside in spite of the errors. They had not mathematically estimated cerebral fatigue. However erroneous collective figures might be when applied to individuals the mean was useful as applied to a class.

M. FONTAINE (civil engineer) pointed out that especially in piecework the best group of workers set the pace. They produced the maximum without over-fatigue but the inferior workers to keep up to this standard did over-work. The only limit in their case was collapse. What, however, was meant by the term *surmenage* (over-pressure)? One muscle or set of muscles might be over-worked; that was not over-pressure. All that was needed was not to stop work but to change the sort of work. Over-pressure was excessive nervous strain, not over-muscular effort.

Dr. IMBERT thought they might say that there was over-work when a night's rest did not suffice to re-establish the normal conditions.

Dr. JULES FELIX (Brussels) protested that they need not, under the pretext of being very scientific, seek to create unnecessary difficulties. They had experimental methods, they could judge with the aid of instruments and also by simply watching the workers. There was a state of fatigue which did not amount to actual illness but which should nevertheless be studied medically, for the real object was to act before illness set in. The speakers had sought to define various categories of fatigue but everything was interdependent. The fatigue of the muscle affected the brain and the brain-worker felt muscular fatigue. Bertholet and Claude Bernard had demonstrated that nothing could be done without the expansion of physical energy and to-day they had to take measures so that in the struggle for bare existence on the one side and the greedy gold-grabbing on the other should not produce a serious detericration of the race.

Dr. TREVES said that over pressure was the spending of more energy than was assimilated.

Mademoiselle JOTEYKO argued that if they could define over-pressure that would show they knew all about it. The utility of the discussion was, on the contrary, due to the fact that they did not know. They might say that over-pressure existed when the effects were injurious. Mosso defined it as a condition when with greater effort less was produced. Also it might undoubtedly be proclaimed that there was over-pressure where the usual rest did not suffice to efface all the effects of the work.

At last the discussion terminated and after a good deal of conversation the following motions were carried:—

1. That in all countries where no such institutions exist a special medical service should be established to watch over the workers.

2. At the legal age for beginning to work the worker must produce a medical certificate of physical aptitude.

3. The Fourth Section considers that, in consequence of the insufficiency of the scientific knowledge at present possessed, it is not yet possible to supply an absolute basis for the organisation of labour in regard to fatigue.

4. The Fourth Section expresses the desire that there should be inscribed on the agenda of the next congress the study of fatigue in one or several selected trades; this study should be made with the aid of the different methods actually known and particularly by noting the attitudes assumed during work and by complete medical observations.

5. In view of the realisation of the preceding resolutions, it is extremely desirable that the Governments should facilitate in the largest measure possible the studies in regard to professional and trade-created fatigue.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: Civic Celebration.

IN celebration of the inauguration of the University of Liverpool the Lord Mayor, on Oct. 5th, entertained at a banquet in the town-hall the Earl of Derby, the Chancellor, and a large number of representatives of other universities interested in education. The gathering numbered 160 and included (besides Lord Derby) Lord Kenyon, representing the University of Wales; the Lord Bishop of Liverpool, the Bishop of Bangor, Sir Alfred L. Jones, K.C.M.G., the Vice-Chancellor of the University of Cambridge, Sir William M. Banks, the Vice Chancellor of the University of London, and several mayors of neighbouring towns. The Lord Mayor, in an interesting speech tracing the origin of the University of Liverpool, proposed "The University of Liverpool," which was replied to by the Earl of Derby. His lordship said that the aspirations of their University were great—he would say illimitable. Having recited the number of chairs and lectureships connected with the University, he remarked that they represented the munificent sum of £186,300. The figures were large and if he were to say they were sufficient he would be in opposition to many around him. He hoped the governing body would endeavour to do its best to give all facilities to those desirous of obtaining degrees. The question had been asked whether the degrees of minor universities were to be regarded as having the honour of older universities. Many whose opinions were well worthy of belief thought that Germany had gained by the number of her institutions that had done much in spreading throughout the country instead of confining within comparatively narrow limits the means of learning. His colleagues and himself would endeavour to make this University what it should be. The toast of "The Makers" was submitted by Vice-Chancellor Dale who paid a warm tribute to the founders, and Sir Edward Lawrence and Sir John Brunner, two of the governors, responded. Other toasts included "The Victoria University of Manchester" and "The Universities in the United Kingdom," which were replied to by Dr. Hopkinson (Vice-Chancellor of Victoria University), the Vice Chancellor of the University of Cambridge, Lord Kenyon on behalf of the University of Wales, Professor Joly (University of Dublin), and the Rev. John Watson on behalf of the University of St. Andrews. The toast of "Education" was replied to by Professor Forsyth of Cambridge and Sir H. F. Hibbert, the chairman of the Lancashire education committee. The proceedings closed with the toast of "The Lord Mayor," which elicited the remark that a son of the Lord Mayor was the first student entered in the books of the new University.

The Medical Profession in Liverpool and St. Luke's Day.

The third annual service to members of the medical profession will be held on St. Luke's Day, Oct. 18th, which this year falls on a Sunday. The Ven. Archdeacon Madden has kindly granted the use of St. Luke's Church for the occasion. The sermon will be preached by the Right Rev. Dr. Jacob, the Bishop of St. Albans. All the necessary arrangements have been completed and there is every expectation that St. Luke's Church will be well filled by members of the medical profession (for whom the middle aisle will be reserved), by their wives and families, medical students, nurses, and the general public who will occupy the side aisles and west gallery. As on the occasion of the last two anniversaries, a collection will be made on behalf of the medical benevolent fund.

Health of Liverpool: Low Death-rate.

The death-rate of the city has not been so low for a number of years. The medical officer of health reported to the meeting of the health committee held on Oct. 8th that the death-rate was 17·6 per 1000 of the inhabitants, as against 21·9 per 1000 at the same period of last year. Small-pox has nearly been stamped out as there are only 21 patients in the corporation hospitals. Typhus fever is rather prevalent, there being at the present time 34 cases in hospital. There are 50 cases of typhoid fever, 38 cases of diphtheria, and 466 cases of scarlet fever in the hospitals. The committee expressed congratulations on the exceedingly low death-rate of the city and the approaching disappearance of small-pox cases.

Proposed New Corporate Public Baths.

The proposed new civic salt-water baths to be built at a cost of £75,000, the plans of which are awaiting the sanction of the city council, will be among the finest in the country. The accommodation will consist of one swimming bath 150 feet by 50 feet, a second one 75 feet by 40 feet, and one 60 feet by 30 feet for ladies; 125 private slipper, spray, and hydropathic baths; two suites of Turkish baths, one to accommodate 56 males and the other for 18 females; and also two suites of Russian baths for males and females. Between 500 and 600 bathers will be accommodated at the same time. The baths will be erected on the site of the present ones at the pierhead and the plans point to a very handsome edifice.

Birkenhead Borough Hospital: Opening of the Nurses' Home.

On Sept. 26th the nurses' home in connexion with the Birkenhead Borough Hospital was formally opened by Sir Elliott Lees, Bart., D.S.O., M.P., in the presence of a large gathering of ladies and gentlemen interested in the institution. The proceedings, which took place in a large marquee erected at the side of the home, were presided over by Mr. Egerton K. Laird. The chairman briefly called on Alderman W. T. Fiddes, one of the oldest members of the committee, who gave a sketch of the institution since its foundation 75 years ago. He said that the present building was given to the town by Mr. John Laird in 1862, at which date he was the Member of Parliament for Birkenhead. Three wards were built and 25 years ago the late Mr. William Laird enlarged the building. Like all others the hospital had had a chequered career, generally being impecunious. A great deal had been done for it by benevolent townsmen, while Alderman Shaw, during his year of mayoralty (1895) stirred up the public to such an extent that £700 were produced to wipe off the debt and £100 were added to the list of subscriptions. In 1897 Mr. John Pennock, the then mayor, raised a fund of about £4500; £3200 were devoted to the cost of the public ward, Mrs. John Laird giving a large sum for furnishing the whole of the new building. From that time to 1900 the public were allowed a little peace but in the latter year further appeals were made for a new home which were met with exceeding generosity. For the furnishing and decorating of the magnificent dining and day rooms the committee was indebted to Mrs. William Laird and to the corporation, which had dealt liberally with the committee in the disposal of the site for the new home, grateful thanks were also due. Sir Elliott Lees was then called upon to declare the home open and, in doing so, he said that it had been suggested to him that, as he would that day meet many of his most influential constituents, it would be a good opportunity to declare his views upon the fiscal question. He could say, sincerely, that they were prepared to support preferential treatment of the sick and he earnestly hoped that the nurses might get adequate protection in their new home. To that he could add that they would welcome free imports from every quarter of the globe in the shape of subscriptions and donations. He expressed confidence that the new home would materially strengthen the potentialities for good of the hospital. He then formally declared the building open. The new building, which is at the rear of the hospital proper, is L-shaped in plan, the entrance being from Livingstone street. It is very compact in design and of handsome appearance, being faced with grey brick and red Ruabon moulded brick. There are two floors, the ground-floor rooms including a large dining hall and nurses' day room which have been furnished by Mrs. William Laird in memory of her late husband to whom they are dedicated and his portrait and a brass tablet are placed in the dining hall. The two rooms can be thrown into one as a large assembly room. There are over 20 bedrooms for the nurses and domestic staff, a sitting room for nurses, store room, pantry, &c. Special provision is made for egress in case of fire, the ventilation is well provided for, and the

building is fitted throughout with electric lights the cost of which has been defrayed by Mr. E. K. Laird.

Professor Sherrington and the University of Toronto.

At the invitation of the University of Toronto Professor C. S. Sherrington, F.R.S., of the University of Liverpool, opened, and delivered the inaugural address at, the newly built medical school of the University of Toronto which now possesses one of the finest medical schools in the world. On this occasion the University of Toronto conferred upon Professor Sherrington the honorary degree of LL.D.

Oct. 13th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Typhoid Fever at Bridgend.

THE prevalence of typhoid fever in Bridgend, which is one of the oldest towns in Glamorganshire and has a population of about 7000 persons, has been commented upon yearly in his reports to the urban district council by the medical officer of health (Mr. Wyndham Randall). In the year 1898 there were as many as 49 cases and five deaths and in 1901 there were 32 cases and two deaths. The disease has occurred in almost every month of the year and not only during the autumn and early winter. Mr. Randall has repeatedly told the sanitary authority that he considered the cause of the disease to be in the soil which had long been liable to pollution. Badly paved yards, too, in his opinion, added their quota to the liability to local infection. Until recently there was no general system of sewerage in the town and what sewers existed were defective, the houses being provided with pail closets and cesspits, but there has now been completed a new outfall sewer discharging into the sea about five miles from the town. During 1901 the water-supply of the district was placed under suspicion and the bacteriological examinations made at the Cardiff and county public health laboratory were not at all satisfactory. In the early part of this year, therefore, Dr. H. Timbrell Bulstrode made an inspection of the locality on behalf of the Local Government Board and in the report which has just been issued by the Board Dr. Bulstrode indorses to a great extent the opinion of the medical officer of health, though he considers that certain facts which he has ascertained in the course of his investigations may point to contamination of the water. He advises that the present source of supply should either be abandoned or subjected to adequate filtration. The latter course is being adopted by the water company.

Gloucestershire Health Report.

During the six years 1894–99 a statistical summary of the annual reports of the district medical officers of health in Gloucestershire was prepared by the chairman of the sanitary committee of the county council. A more extended summary was made in the two subsequent years by Mr. G. H. Fosbroke, the county medical officer of Worcestershire, and for the year 1902 a report has been made by Dr. J. Middleton Martin who has been appointed medical officer to the county while retaining his appointments as medical officer of health of the urban and rural districts of Stroud. The administrative county had a population at the middle of 1902 of 332,460, and there was a birth-rate during the year of 28·6 per 1000. The death-rate was 14·2 per 1000 but corrected for age and sex distribution this latter rate was only 12·8 per 1000. The position of the county as regards provision for the isolation of cases of infectious disease is far from satisfactory. In 12 of the 37 sanitary districts with an aggregate population of nearly 73,000 persons there is no isolation accommodation at all and in many of the remaining districts the accommodation is quite inadequate. Dr. Martin suggests that the county council should contribute towards the cost of erecting suitable hospitals in the county. In the section dealing with schools Dr. Martin urges the great importance of giving lessons in hygiene and advises that all teachers appointed in the future should be required to show a reasonable knowledge of hygiene and that lessons in elementary hygiene should be given in all schools, more particularly to the older girls.

Memorial to the late Mr. Charles Highett.

On Oct. 3rd the Lord Mayor of Bristol formally opened a boys' club in St. Werburgh's, Bristol, which has been erected as a memorial to the late Mr. Charles Highett, M.R.C.P. Edin., who was mayor of Bristol in 1892. The Lord Mayor also unveiled an excellent portrait of the deceased, underneath which was the inscription on a stone tablet: "To the glory of God and in memory of Dr. Charles Highett who died April 20th, 1896."

Poor-law Conference at Exeter.

At the Poor-law Conference which has just been held at Exeter a considerable time was occupied in discussing the treatment of the feeble-minded. The general opinion seemed to be that the Commissioners in Lunacy should facilitate the establishment of separate institutions for the treatment of imbeciles, the view being expressed that these institutions would be less expensive than lunatic asylums, that the comfort of the inmates would be greater, and that their training would be more easily carried out.

Oct. 13th.

IRELAND

(FROM OUR OWN CORRESPONDENTS.)

Meath Hospital and County of Dublin Infirmary.

THE opening meeting for the winter session took place at the Meath Hospital on Oct. 12th, when an address was delivered by Sir Philip Smyly, one of the surgeons to the institution. On the motion of Sir J. W. Moore, seconded by Sir Lambert H. Ormsby, President of the Royal College of Surgeons, the chair was taken by Sir Francis R. Cruise. Sir Philip Smyly in his address alluded to the serious loss the hospital had sustained by the death of Sir William Stokes who sacrificed his life for his country but not before he had made a high name for himself as a surgeon and perpetuated the reputation of his father, William Stokes, who long ago, with Graves, had made the Meath Hospital famous. The hospital is, of course, one of the oldest in Ireland and this year completes its third jubilee.

Death of Mr. John Roche, M.D., M.Ch. R.U.I.

A cablegram announcing the death of Dr. John Roche has recently been received from Heidelberg, South Africa, where he was staying on a visit to his son. Dr. Roche was for many years a well-known resident in Kingstown. He was highly popular in the district and much respected. He was a distinguished graduate and prizeman of the Royal University of Ireland and in 1885 obtained the degree of D.Sc. R.U.I. Dr. Roche served in the Indian Medical Service for many years and was the author of numerous contributions to medical literature. He was a justice of the peace for the county of Dublin.

Infectious Diseases in Belfast.

The second attempt of the public health committee of the city of Belfast to get the guardians to convert the Belfast workhouse fever hospital into a district hospital and to utilise it for the period during which their own city fever hospital (three years) will be in process of building has ended, as might have been anticipated, in another failure, the following motion having been carried by 23 votes to three:—

> That this board fully recognises the urgent need of additional accommodation for the treatment of infectious diseases, but begs to point out that as the council of the county borough of Belfast is the health authority, and as the need for additional accommodation has been pressed upon the attention of the corporation for the last 12 years without avail up to the present, the board cannot relieve the corporation of its responsibility in the matter, as to do so would be to put itself in a false position by accepting a responsibility that does not fall upon the board of guardians.

The leader of the minority stated that if the debate had the object of making the corporation do what it should he for one would be perfectly satisfied. The public health committee is now *in statu quo* and must either take the old Royal Hospital or build temporary infectious wards at Purdysburn where the new infectious diseases hospital is to be built.

Forster Green Hospital, Belfast.

At a meeting of the supporters of this hospital held on Oct. 10th it was reported that during the past nine months 150 cases had been treated, 71 men and 79 women. It has been decided to fit up an apparatus whereby the Roentgen rays can be used for diagnosis and treatment. Through the help of Mr. Forster Green and other friends a debit balance of £336 2*s.* 11*d.* has been wiped out. The beds have been

all occupied and those in the open air are most liked by the patients.

Belfast Lunatic Asylum.

The authorities of the Belfast Asylum have been using the emergency buildings erected at Purdysburn by the city corporation for small-pox patients, but a letter was received by the asylums board on Oct. 12th to the effect that the inspector of lunacy objected to this because wood-lined buildings were dangerous, especially in the winter months, owing to the risk of fire from heating and lighting. The board is to convey and to remove the 50 patients from these buildings. Evidently the experience of Colney Hatch has frightened the asylum control authorities.

Armagh Asylum.

At the monthly meeting of this asylum board held on Oct. 12th the report of the inspector of asylums was read, showing that the average capital cost of maintenance during the year ended March 31st, 1903, was £21 4*s.* 6*d.*—a proof that no complaint could be made on the score of expenditure. The inspector suggests a plan to get rid of the overcrowding. It has been decided to provide looms for the patients to work, a plan that has been introduced with success into the Richmond Asylum as well as into five other county asylums in Ireland.

Irish University Education.

The air is again full of rumours in reference to coming legislation in the next session of Parliament with regard to Irish university education. Some think it will take the form of a Roman Catholic university, while others assert that a scheme is "cut and dried" for the turning of the University of Dublin into a national university with three affiliated colleges, Trinity College, Dublin, a new fully endowed Roman Catholic college in Dublin, and Queen's College, Belfast. Whatever shape the measure may ultimately take everyone believes that preliminary steps are being taken in the matter.

The Royal Victoria Hospital, Belfast.

The winter session 1903-04 is to be inaugurated so far as clinical teaching is concerned in Belfast by an opening address at the Royal Victoria Hospital on Oct. 22nd, to be given by the chairman of the medical and surgical staff, Dr. J. Walton Browne. Since the end of the summer session the removal to the new hospital has taken place; the arrangements there are excellent for treating the patients and for clinical teaching.

Oct. 13th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A New Treatment for Infantile Gastro-enteritis.

M. Henri de Rothschild, who founded a very well-appointed dispensary for infants, has there made a study of gastro-enteritis, a disease which is so fatal in infants that during some weeks of the year it brings about a mortality of 200 per week. On Oct. 13th M. de Rothschild stated at the Academy of Medicine that despite all the treatments which he had employed he had never been able to bring the mortality below 50 per cent. When, however, acting on the advice of M. Roux and M. Metchnikoff, he had treated his patients with skimmed milk to which 10 per cent. of lactic acid had been added the malady was nipped in the bud and between June 1st and Oct. 1st he had treated 14 cases at his dispensary, all of which had recovered.

The International Sanitary Conference at Paris.

Following on the recent International Conference in Venice, another conference, to round off the regulations to be taken against plague and cholera in Europe and the East, has just met at Paris, commencing on Oct. 10th. The conference was due to an invitation addressed to the Powers by Italy. M. Barrère, the French Ambassador to Italy, who presided over the Paris Conference in 1894 and who was the representative of France at the conference held at Venice and at Dresden, presided over the French delegates at this conference. No information of the proceedings of the conference has been communicated to the press up to the time at which I write, so I presume that nothing of importance has been accomplished.

The Inspection of Butcher's Meat.

Paris is greatly excited at the present moment over the sale of butcher's meat. Animals intended for food are killed in the municipal abattoirs where the carcasses are examined by special sanitary examiners who inspect all the viscera and have the right to prevent any meat being taken out of the abattoirs for delivery to the meat salesmen for sale to the public if the animal from which such meat comes shows on examination of its viscera that it has been affected with tuberculosis, glanders, or measles (*ladrerie*). On this side of the matter therefore the health of Paris is carefully looked after for no animal may be killed in any shop for the sale of meat within the town of Paris itself and all private slaughter-houses have for some time past been abolished. Unfortunately, however, there exists in the central markets a traffic in meat which comes from various quarters—that is to say, from the suburbs, from the provinces, and even from abroad. Such meat is brought into Paris already cut up and the sanitary inspectors exercise supervision over it in the central market and can seize and order to be destroyed any pieces which they suspect, but this inspection can only deal with the question as to whether the meat is fresh or not, for once the viscera have been removed it is not possible for a superficial examination to eliminate the existence of such diseases as tuberculosis. The animals from which such meat comes have been killed in the country, in private abattoirs, where the carcasses are subjected to no examination, for sanitary inspection is only organised in the big towns and it would be impossible to organise a corps of sanitary inspectors for each village where any butcher is at liberty to kill his own beasts. This fact is well known to cattle merchants and butchers who very often buy up sick beasts which would certainly be refused at the public abattoir, send them into the country, kill them there, and bring them back in separate pieces as meat for sale. As they buy up these sick beasts at a very low price they make handsome profits at the expense of the public health. The daily journals have begun to discuss this question and the authorities of the municipal abattoirs are much concerned to find that so many little private slaughter-houses, which have been suppressed in Paris, are undergoing resurrection in the country around.

Oct. 13th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Small-pox in Bosnia and Herzegovina.

AN interesting account of the occurrence of small-pox in Bosnia was recently given by Dr. Kobler of Serajevo in a paper read before a German society in that town. Before they were occupied by the Austrians in 1878 both Bosnia and Herzegovina were Turkish provinces and small-pox was everywhere endemic in them. Many elderly persons are still to be seen not only pitted with the disease but presenting cicatrices on the eyes and on the extremities. Statistical records of small-pox were commenced in the year 1880; in 1888 there were 14,177 cases and in 1889 there were 13,540 cases. Compulsory vaccination was introduced in 1883 and from that time till 1898 there were 772,691 vaccinations performed. The prevalence of the disease has fallen rapidly since the introduction of compulsory vaccination and in the year 1892 there was not one case in Bosnia and Herzegovina. Small centres of the disease still occur, the number of cases not exceeding 20 or 30 per annum. These places are only on the Turkish and Montenegrin frontier and the patients are immigrants from countries where vaccination is not compulsory. In Bosnia and Herzegovina there are some qualified females engaged in civilian medical practice who are of great use in the compulsory treatment of infectious diseases in the houses of Mahomedan women and in the harems, as male practitioners are never admitted in such circumstances, and the Mahomedan population have shown much opposition to the measures taken by the authorities for the prevention of small-pox and syphilis.

Syphilis in Bosnia and Herzegovina.

A paper on the distribution of syphilis was also read before the society by Dr. Glück of Serajevo. He said that the disease was brought into the country by the Osmans and that it became widely spread throughout the whole population. It was not uncommon for all the inhabitants of a village or small town to be infected. The Turkish surgeons treated it

by fumigations with calomel, a method which is still in use as a domestic remedy in families. Before the Austrian occupation in 1878 syphilis in Bosnia had the character of a malignant disease. The ulcerative stage was early in its appearance, firstly in the skin and mucous membranes and then in the bones. It was in most cases impossible to find the initial lesion and the frequency of extragenital syphilis was very remarkable. The second stage of the disease presented itself as a syphilide under the form of lichen and similar symptoms attended a relapse of the second stage. The frequent occurrence of this peculiar manifestation was due to malnutrition, anæmia, and predisposition to tuberculosis. A question of very great interest was the extreme rarity of nervous sequelæ such as tabes dorsalis and general paralysis of the insane. Notwithstanding the wide diffusion of syphilis in an endemic form only seven cases have been observed among the native population of Bosnia in the course of seven years. The lunatic asylums are well filled, but in all of them only four cases have been found.

The University of Vienna.

During the last summer semester only 803 students (including 17 women) and 442 post-graduate visitors attended the lectures and laboratories. This diminution is due both to the depressed condition of the medical profession in Austria and also perhaps to the fact that the professors who used formerly to be renowned as leaders in science have all passed away. The following *privat-docenten* have received the title of professor: Dr. Theodor Beer (physiology), Dr. Edouard Spiegler (dermatology), Dr. Max Sternberg (medicine), Dr. Michael Grossmann (laryngology), and Dr. Tandler (anatomy). Dr. Karl Walko has been admitted as *privat-docent* in the German University of Prague.

The death of Dr. Alexander Rollett, professor of physiology in the University of Graz, is announced. A pupil of Brücke, he worked principally at the physiology and histology of the red blood corpuscle and the muscular and connective tissue. He discovered the delomorphous and adelomorphous cells in the gastric glands at the same time as Professor Heidenhain of Breslau.

Oct. 12th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

The Summer in Egypt.

OLD Egyptians declare that the climate of Egypt has changed considerably in the last few years and their contention gains ground by the experience of the summer just drawing to a close. The heat was never at any time excessive, though in July and August the humidity was much above the average. The worst part of the summer is always in the early months, especially in June with its dry heat and dust, but as the year progresses a cool northerly breeze sets in every evening at sundown, almost with the regularity of a trade wind, thus insuring a cool night and a chance of refreshing sleep to enable one to stand the heat of the morrow. With the improvement in the system and the increased area of land under irrigation the humidity has naturally increased; but at the present time, usually the dampest season of the year, the weather is splendid and so cool that it is no longer possible to dine in the open air unless well wrapped up. For the benefit of your readers in England it may be recorded that there has hardly been a drop of rain in Cairo this year, and there has been nothing in the weather of this summer that might not have been quite well borne by the Englishman who has never crossed the Channel. There has been the usual average of typhoid fever, which generally assumes the severe tropical form, but nothing like an epidemic although the mortality has been rather higher than usual. The Nile flood has been a good average one this year and with skilful management of the barrages and careful regulation of the supply of water to the different canals there will be only a very small area of cultivable land unirrigated. The cotton crop, however, is not good as the sun has not been hot enough or the air sufficiently dry to open the pods thoroughly. To think that it is not hot enough in Egypt!

The Coming Season.

The prospects for the coming season are exceptionally good. There is no plague to speak of and there is no cholera (Unberufen!) and the weather promises to be delightful though rather colder than usual. In an ordinary year visitors to Egypt should arrive in Cairo about the middle of November and should go straight up the river to Assouan, Wady Halfa, or even Khartoum, if they wish it. This is the best time for the river and on their return, from three to six weeks later, Cairo is at its best and remains until March a thing of beauty and a joy for those who love gaiety, excitement, and beautiful weather. It must be remembered that December and January are quite cold enough for big fires and English winter clothing and that after the beginning of the New Year it is very cold on the river. It is a great mistake to imagine that Egypt, and Cairo particularly, is always hot. Early in April at the latest the tourist should begin to wend his way homewards, *viâ* the south of Europe, if possible, although sometimes the weather in Cairo does not become very hot until May is well advanced. This year from all appearances, if the winter is to be at all in keeping with the summer, these dates should be put nearly a month earlier as regards the commencement of the season.

Deaths in the Profession in Egypt.

It is with sincere regret that I have to record the death of Dr. George Atkins Rountree who has recently done such good work in Lower Egypt. Dr. Rountree qualified in Dublin in 1882 and first came to Egypt several years ago as medical officer to Cook's Nile steamers. His next appointment was that of surgeon to the hospital of the firm at Luxor and less than two years ago he was appointed assistant inspector to the sanitary department of the Egyptian Government. In this position his genial manners and tact and his capacity for hard work made him a most trustworthy officer and endeared him to all with whom he came in contact. While on duty at Damietta he caught a severe cold and after lying very ill at Tantah for some days he was brought to Cairo with grave symptoms of lobar pneumonia. He held his own for some time but finally died from heart failure on August 12th. His death came as a great shock to his friends by whom he was universally liked and respected. Mr. A. T. White, whose death took place less than a month later, was educated at Westminster Hospital and had done good work in Uganda before coming to Egypt to take charge of the hospital erected by Sir John Aird in connexion with the building of the Assouan barrage. On the termination of this work Mr. White was appointed an assistant inspector in the sanitary department and was stationed at Assiout. After much hard work in this post, as a result of which his health, never very robust, suffered considerably, he went to Suez on holiday duty. Here he contracted diphtheria in its most virulent septic form and in spite of antitoxin, tracheotomy, and the most careful treatment he died in less than a week from the time of the first appearance of definite symptoms. He leaves a young widow very badly provided for but it is hoped that with an adequate Government gratuity and the efforts of friends she may be enabled to make both ends meet. Mr. White was a veritable slave to his work and his name must be added to the ever lengthening roll of those medical men who have met their death in the discharge of their duty. He contracted the disease from a native patient whom he was treating.

The Rarity of Appendicitis and other Surgical Abdominal Conditions in Egypt.

In these days, when the question of the increase in appendicitis is being so much discussed, it is interesting to observe that in a personal experience of over 2000 major operations among native Egyptians in the last five years only three cases of appendicitis have been met with. It is a matter for conjecture whether this is due to the rigid vegetarianism, the fact that no tinned foods are eaten in any form, the avoidance of anything approaching a strenuous life, or the absence of clothing in the poorer classes and their consequent non-susceptibility to cold, in contrast with the over-clothing with flannel by the richer population, but to a surgeon in England it must be difficult to realise that in five years only three cases of appendicitis have occurred in a general hospital practice. Abdominal conditions generally requiring surgical interference are also rare, for there are practically no gastric ulcer, no intussusception, and no malignant disease of the intestine. By far the most usual form of intestinal obstruction is strangulated hernia; in fact, with the exception of three cases of volvulus of the descending colon and sigmoid flexure, all other forms are quite curiosities. Tuberculous peritonitis and tuberculous masses in the omentum or infection of the mesenteric glands are also very uncommon, but whether this

is due to the small quantity of milk taken by the natives—for except for breast-feeding for the first year and sometimes two years a child rarely has milk of any kind—it is difficult to say. It is interesting to note, also, that bovine tuberculosis is not at all common in Egypt.

Cairo, Oct. 3rd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Small-pox in Tasmania.

THE outbreak of small-pox at Launceston continues. The disease is in a virulent form, many of the cases being hæmorrhagic. Mr. J. S. C. Elkington of Melbourne has been engaged by the Government to advise generally regarding the outbreak. Every case is removed to the isolation hospital as soon as recognised. "Contacts" are placed in a special building, after a carbolic bath and a change of clothing. The old clothes are burnt and the houses are thoroughly disinfected. The outbreak has cost the Government about £10,000 already and is still causing an expenditure of about £270 a week.

Vaccination in New South Wales.

The President of the Board of Health has presented a memorandum to the Premier of New South Wales on vaccination. After pointing out the beneficial effect that vaccination had had in other countries the memorandum proceeds to show that New South Wales is the only State in the Commonwealth where there was no compulsory Vaccination Act. It might be inferred from that that the people were opposed to compulsory vaccination, but the only available evidence went to show that they held no strong opinion on the subject. They appeared not to oppose it but merely to neglect it. Whenever there was a small-pox scare the numbers who applied for vaccination for themselves or their children rose remarkably. During the epidemic in Sydney in 1879-80 the vaccinations voluntarily done amounted to nearly 60,000, although before and afterwards the number of people vaccinated in the years when there was no scare was so small in proportion to the total population as to be insignificant. There seemed to be no reason, therefore, for expecting that any great opposition would be offered to the passage of an Act rendering vaccination and revaccination compulsory, and as this State was not merely exposed to disaster itself from the want of such a law, but was consequently a perpetual menace to every other State, the Board of Health would once more urge that the introduction of a Vaccination Bill and the establishment of a calf lymph station should be taken into practical consideration without delay.

Leprosy in Victoria.

A Chinaman, carrying on business in one of the main streets of Melbourne, was found to be suffering from leprosy. He was promptly isolated and his shop and dwelling were placed under police surveillance. Arrangements have been made to convey him back to China in a cargo-boat.

Treatment of Consumptives.

Nothing has yet been done towards providing further hospital accommodation for cases of advanced consumption in indigent circumstances in Melbourne. Mr. Kronheimer has given a sum of £5000 towards the equipment of a building for the purpose but difference of opinion has arisen as to how and where it should be expended. The committee of the Austin Hospital for Incurables, where cases of tubercle are now received, proposed that the money should be spent in additions to the buildings there. To this the residents of Heidelberg, where the hospital is situated, object. The Minister of Health has recommended that Mr. Kronheimer's gift should be used to erect buildings at the Home for Indigent, Aged, and Infirm at the Royal Park. The inspector of charities reported to the Minister that the cost of maintaining consumptive patients at the Government institution—the Home—would be much less than at the Austin Hospital. The inspector has obviously based his estimates on a wrong conception. He has overlooked the fact that advanced cases of consumption require constant nursing and expensive nourishment and drugs.

The Age of Consent in New South Wales.

Dr. C. K. Mackellar has introduced into the Legislative Council of New South Wales a Girls' Protection Bill, the object of which is to give protection to girls under 17 years against all those offences under the Crimes Act which now applied to girls under 14 years of age. He pointed out that in England the age of protection was 16 years, in Tasmania 15 years, in New Zealand, Victoria, and West Australia 16 years, in South Australia 17 years, while in many American States it was 16 years and in others 17 years and 18 years. In New South Wales girls between 14 and 17 years were not sufficiently protected as regarded their personal purity by the law as it stood. The law presumed that a girl under 21 years was unable to make any legal or binding contract in regard to her property because she was presumed to be incapable of intelligently guarding her own interests in such transactions, but when she came to deal with her own personal purity, which should be as dear to her as life itself, she was afforded no protection whatever after attaining the age of 14 years. The unanimous opinion of the medical men whom he had consulted was that the sexual maturity of girls was practically the same in New South Wales as in European countries, and a very distinguished authority had said that there was little difference in this regard between India and England, the idea that warm latitudes had a great influence being erroneous. The statistics showed that in the ten years from 1893 to 1902 in New South Wales 4575 illegitimate children were born of girls 18 years of age and under, 2028 being 18 years old, and he thought that if any argument were wanting in favour of an alteration of the law they had it there. The Bill, with some minor amendments, was carried and reported for the third reading.

Declining Birth-rate.

The Government of New South Wales has appointed a Royal Commission to inquire into the decreasing birth-rate of the State. It is issued to the following gentlemen: Dr. Mackellar, M.L.C. (president); Sir Henry Norman MacLaurin, M.D., LL.D., M.L.C.; Mr. Octavius C. Beale, president of the New South Wales Chamber of Manufactures; Mr. Timothy Augustine Coghlan, I.S.O., Government statistician; Mr. Joseph Foreman, M.R.C.P. Edin., &c.; Mr. Edmund Fosbery, C.M.G., Inspector General of Police; Mr William Arthur Holman, M.L.A., barrister-at-law; the Right Hon. Thomas Hughes, Lord Mayor of Sydney; Mr. Edward William Knox, general manager, Colonial Sugar Refining Company, Limited; Mr. George Stanley Littlejohn, president of the Sydney Chamber of Commerce; Dr. John Brady Nash, M.L.C.; and Dr. Robert Thomson Paton, Government Medical Officer.

Charges against Dr. Ramsay Smith, Coroner at Adelaide.

Dr. W. Ramsay Smith, who, it will be remembered, originally came to Adelaide to act as medical officer to the Adelaide Hospital when the honorary staff resigned and was subsequently appointed coroner and inspector of anatomy, has been suspended by the Government. He is charged with infringing the Anatomy Act which it is his duty to administer. A board, consisting of Commissioner Russell, Mr. Buchanan, Master of Supreme Court, and Dr. Torr, is inquiring into the charges. These are practically all of the same kind—viz., removing skulls, skeletons, and other anatomical structures from dead bodies and sending them to Edinburgh. As regards several of the cases the charge was that Dr. Smith improperly took advantage of his position as coroner to obtain skulls. Also that skeletons were taken from bodies contrary to law and not for purposes of anatomical study by medical students in the State. Voluminous correspondence was put in, including a long letter from Dr. Smith to the Chief Secretary, in which the following statement occurs:—"I further declare that the procuring, preparation, and export of these anthropological and other specimens was with the knowledge and concurrence of the Governments of the day. If I am to be charged and suspended, I think, as a matter of equal justice, the following gentlemen should be similarly treated:—Professor Watson, pathologist; Dr. Angas Johnson, assistant physician at the hospital; Professor Stirling, consulting surgeon; Dr. Rogers, honorary physician; Dr. Verco, assistant gynæcologist; Dr. Smeaton, medical superintendent; Dr. Cleland of the asylum; and Dr. Stewart of Port Pirie. I do not suggest that these gentlemen have done anything wrong, but if they have not neither have I. I deny the illegality and assert that the charges are untrue. I have done nothing illegal, either at common law or under the Anatomy Act, or otherwise. In whatever has been done I

have followed the practice recognised and adopted, not only in this State but throughout the civilised world. I have not been guilty of any conduct rendering me unfit to remain in the civil service. What I have done has always been for the advancement of science, for the alleviation of human suffering, and for the efficiency of my profession. I cheerfully invite the fullest investigation of the whole subject."

The British Medical Association and the Australian Natives' Association in New South Wales.

In May last a women's branch of the Australian Natives' Association was formed in Sydney and registered under the Friendly Societies Act. Its main object was to be the attendance of its members by a medical woman. The position of medical officer to the branch was advertised and a number of applications were received. Dr. Harriett Biffen was appointed. The council of the New South Wales Branch of the British Medical Association then officially informed Dr. Biffen, who is a member of the British Medical Association, that she could not accept the position as the Women's Native Association was one "inimical to the medical profession." As all the medical women in Sydney are members of the British Medical Association the Women's Native Association is practically boycotted.

Hospital Affairs.

Once more the scandalous quadrennial election of the whole of the honorary staff of the Melbourne Hospital has been held. It had been hoped that this time the various positions would not be contested and that in this way the evils of the system of election by the subscribers would be avoided. At the last moment, however, Dr. H. Maudsley, who holds the position of honorary physician at the Alfred Hospital, announced his intention of seeking election as physician to the Melbourne Hospital. His friends, including ladies who are the leaders of society, made an energetic personal canvass of the subscribers with the result that Dr. Maudsley was elected by a majority of about 60 votes out of some 2000 polled. Dr. J. R. MacInerney, who is thus displaced, has ably served the hospital for many years, first as physician to out-patients and for 12 years as physician to in-patients; he is an excellent clinical teacher and an expert bacteriologist, possessing a most completely equipped private laboratory. It is to be hoped that the result of the election will cause a strenuous effort to be made once more to alter the system of election. Proposals to this end have been recently made. In February last representatives from the charitable hospitals of Victoria met in conference in Melbourne and appointed a committee to consider the Hospitals Act of 1890 with a view to suggest alterations and amendments in it. That committee has now finished its work and its report contains several important recommendations having for their object the better operation of hospital legislation. In the first place it is suggested that the Hospital and Charities Act should be repealed and that a new statute should be enacted embracing all hospital, charitable, and philanthropic institutions in the State. Recommendations are made for amendments which will more closely define the status of contributors, life members, and executors for voting purposes and include in the category representatives or nominees of persons or organisations, so that charitable hospitals may amend their by-laws and thus enable such representatives to take part in the allocation of contributions and in the management of hospitals to which the organisations subscribe. Honorary office-bearers should be elected by contributors personally present (not by proxy) who had paid their subscriptions. In order to prevent imposition upon charitable hospitals by those able to pay for their treatment the committee thinks that the section dealing with this subject should indicate clearly that the provision and the penalty should apply to destitute persons afterwards becoming able and refusing to pay and also to any person who wilfully misrepresents his position. One of the most important questions dealt with in the report has reference to the method of appointing honorary officers and the committee has formulated a scheme to apply only within a ten-mile radius of Melbourne where the present system is felt to be objectionable alike to committees, subscribers, and the medical profession. The scheme involves the appointment of an electoral college, consisting of four medical practitioners, four representatives of metropolitan hospital committees, and one member elected by Melbourne University. The applications for honorary positions should be considered by such college, together with two committee-men from the particular hospital concerned. The term of office for each member of the college should be ordinarily four years, subject to a graduated scale in the case of those first chosen. Honorary medical officers elected by the college should hold office for seven years with the privilege of re-election and should retire at the age of 60 years in the case of surgeons and 65 years in the case of physicians. A resolution passed by an absolute majority of a hospital committee should be sufficient to remove a medical practitioner from the honorary staff.—At the forty-sixth annual meeting of the Women's Hospital, Melbourne, the report presented stated that during the past year 442 patients received treatment in the infirmary department and 1489 in the midwifery department; 1105 infants were born in the hospital. The out-patient department showed a slight falling off, there being 1043 new patients, as against 1050 in the previous year. The necessity for extra accommodation had been apparent for several years past, but the realisation of the hopes of the committee in that direction seemed to be as far off as ever. Some patients had been awaiting admission for many months. There was still the burden of an overdraft, notwithstanding that the annual expenditure had been reduced by about £580. The total income for maintenance was £7920, including the sum of £1000 transferred from the reserve fund very early in the year. It scarcely reflected credit on the public that the institution should be in the unique position of not having any endowment fund. The debt on the building fund had increased to £521. Funds were being collected for the enlargement of the cottage for the maintenance of cases of septicæmia, the consent of the Board of Health having been obtained to extensions to cost £497.—At the annual meeting of the subscribers to St. Vincent's Hospital, Melbourne, the Lord Mayor (Sir Samuel Gillott) presided and in opening the meeting called attention to the unfinished state of the new hospital, for which £15,000 had been subscribed. The foundations of the building had been laid at a cost of £4000 which left £11,000 available for its completion. Tenders had recently been called for this but the lowest tender for the work had been £28,000. It was therefore necessary to formulate some scheme for the augmentation of the fund in order that the erection of the buildings might be proceeded with. The annual report showed that during the year 7879 patients had been treated, of whom 439 were in-patients. The total receipts for the year were £3080, of which £733 came from regular annual subscribers, £458 from the contributions of patients, and £310 from the St. Vincent's Ball. The expenditure was £2921, so that the year's operations reduced the bank overdraft to £533. Subsequently it was decided to form a league to collect the funds necessary for the building of the new hospital.

Sept. 8th.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At the Primary Examination the following candidates passed in the subjects indicated:—

PART I.

Biology.—R. Rowlands, Glasgow.

Chemistry.—L. W. Bradshaw, Leeds; and H. T. Roberts, St. Mary's Hospital.

Materia Medica and Pharmacy.—R. J. W. McKane, Leeds; and R. Rowlands, Glasgow.

PART II.

Anatomy.—S. F. H. Everill and G. W. Hassall, Birmingham; R. D. Neagle, St. Mary's Hospital; and A. Shepperd, Guy's Hospital.

Physiology.—S. F. H. Everill, Birmingham; C. E. Pring, Royal Free Hospital; A. Shepperd, Guy's Hospital; and G. W. Simpson, Bristol.

UNIVERSITY OF DURHAM.—At the Convocations held on Sept. 26th and Oct. 3rd the following degrees and diploma were conferred:—

Doctor in Medicine.—Clifford Harold Brookes, M.B. Durh.; William Pitt Palmer, M.B., B.S., L.S.Sc. Durh., M.R.C.S. Eng., L.R.C.P. Lond., L.S.A.; Richard Thorne Thorne, M.B., B.S. Durh., M.R.C.S. Eng., L.R.C.P. Lond.; and Wilfrid Maynard Davson, M.B., B.S. Durh.

Doctor in Medicine for Practitioners of 15 years' standing.—George Wills Blomfield, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A.; Harry Burton, M.R.C.S. Eng., L.S.A.; George Taylor Gifford, M.R.C.S. Eng., L.S.A.; William Henry Hillyer, M.R.C.S. Eng., L.R.C.P. Lond.; George Frederick Hugill, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A.; Francis William Jollye, M.R.C.S. Eng., L.R.C.P. Lond., F.R.C.S. Edin., D.P.H.; William Salisbury Sharpe, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H.; Edward Sharpley, M.R.C.S. Eng., L.R.C.P. Lond.; Harry Lyon Smith, M.R.C.S. Eng., L.R.C.P. Edin.; Charles James West, M.R.C.S. Eng., L.R.C.P. Lond.; and Oswald Samuel Wraith, L.R.C.P. & S. Edin.

Bachelor in Medicine (M.B.).—Ambrose Harold Bateman, Charles Harold Crass, and Harold Linton Currie, College of Medicine, Newcastle-upon-Tyne; Alice Maud Dodd, London School of Medicine for Women; Arthur Gibson Dunn, Francis Jollie Gowans, Daniel Richard Guns and Alfred Herbert Heslop, College of Medicine, Newcastle-upon-Tyne; Philip William James, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital, London; Evan Llewellyn Jenkins, M.R.C.S., L.R.C.P., St. Mary's Hospital, London; Evelyn Kendal, College of Medicine, Newcastle-upon-Tyne; Wharram Henry Lamplough, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital, London; John George Ogilby Hugh Lane, M.R.C.S., L.R.C.P., Guy's Hospital, London; Herbert Lovis Noel-Cox, and William Henry Peacock, College of Medicine Newcastle-upon-Tyne; Alfred Reid, M.R.C.S., L.R.C.P., D.P.H., Guy's Hospital, London; Carl Anders Ryman, St. George's Hospital, London; Thomas Young Simpson, M.R.C.S., L.R.C.P., London Hospital; and Andrew Smith, Joseph Collingwood Stewart, and John Robert Wylie, College of Medicine, Newcastle-upon-Tyne.

Bachelor of Surgery (B.S.).—Ambrose Harold Bateman, Charles Harold Crass, and Harold Linton Currie, College of Medicine, Newcastle-upon-Tyne; Alice Maud Dodd, London School of Medicine for Women; Arthur Gibson Dunn, Guy Rowland East, M.B. Durh., Francis Jollie Gowans, Daniel Richard Guns, Alfred Herbert Heslop, and Albert Ernest Hodge, M.B. Durh., College of Medicine, Newcastle-upon-Tyne; Evan Llewellyn Jenkins, M.R.C.S., L.R.C.P., St. Mary's Hospital, London; Evelyn Kendal, College of Medicine, Newcastle-upon-Tyne; Wharram Henry Lamplough, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital, London; John George Ogilby Hugh Lane, M.R.C.S., L.R.C.P., Guy's Hospital, London; William Henry Peacock, College of Medicine, Newcastle-upon-Tyne; Thomas Young Simpson, M.R.C.S., L.R.C.P., London Hospital; and Andrew Smith, Joseph Collingwood Stewart and John Robert Wylie, College of Medicine, Newcastle-upon-Tyne.

Bachelor in Hygiene (B.Hy.).—Wilfred Ernest Alderson, M.D., M.S. Durh.; and Laurence McNabb, M.B., B.S., D.P.H. Durh.

Diploma in Public Health (D.P.H.).—Wilfred Ernest Alderson, M.D., M.S. Durh.; William George Barras, M.D., L.S.Sc. Durh.; William Edwin Peacock, M.D., B.S. Durh.; and David Young, M.B., Ch.B. Edin.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bologna:* Dr. F. Sprecher has been recognised as *privat docent* of Dermatology and Dr. D. Fieschi as *privat-docent* of Surgery and Operative Medicine.—*Budapest:* Dr. Franz Tangi has been appointed Professor of Medical Chemistry in succession to the late Dr. Plosz.—*Buenos Ayres:* Dr. Julio Mendez has been appointed to the chair of Hygiene.—*Cairo:* Dr. Llewellyn Phillips has been appointed Professor of Clinical Medicine.—*Chicago (College of Physicians and Surgeons):* Dr. W. L. Ballenger has been appointed Professor of Oto-Rhino-Laryngology in succession to Dr. M. R. Brown, resigned.—*Erlangen:* Dr. Fritz Voit of Munich has been appointed Professor of Medicine and Pharmacology. Dr. D. Gerhardt of Strasburg has been appointed Professor of the History of Medicine.—*Florence:* Dr. F. Radaeli has been recognised as *privat-docent* of Dermatology.—*Gratz:* Dr. Hermann Zingerle, *privat-docent* of Psychiatry and Nervous Diseases, has been promoted to an Extraordinary Professorship.—*Königsberg:* Dr. P. Hilbert, Dr. Max Lange, Dr. Max Askanazy, and Dr. P. Gerber, *privat-docenten* in the Medical Faculty, have been granted the title of Professor.—*Leipsic:* Dr. Adolf Glockner has been recognised as *privat-docent* of Midwifery and Gynæcology.—*New York (College of Physicians and Surgeons):* The following lecturers have been appointed: Dr. J. S. Thacher (Medicine), Dr. Joseph A. Blake and Dr. G. E. Brewer (Surgery), Dr. Arnold H. Knapp (Ophthalmology), Dr. J. D. Voorhees (Midwifery), and Dr. Christian A. Herter (Therapeutics and Materia Medica).—*Odessa:* Dr. S. Golovin of Moscow has been appointed Extraordinary Professor of Ophthalmology.—*Pennsylvania:* Dr. Allen J. Smith has been appointed Professor of Pathological Anatomy in succession to Dr. Flexner, resigned.—*Prague (German University):* Dr. R. v. Zeynek of Vienna has been appointed Professor of Medical Chemistry.—*Rome:* Dr. Guglio of Messina has been appointed Professor of Materia Medica and Pharmacology. Dr. Sciamanna, extraordinary professor of psychiatry, has been promoted to an Ordinary Professorship. Dr. Polimanti of Genoa has been recognised as *privat docent* of Physiology.—*Strasburg:* Dr. Ulrich Rose has been recognised as *privat docent* of Medicine.—*Tomsk:* Dr. A. Kulzhabko has been appointed Extraordinary Professor of Physiology.—*Vienna:* Dr. K. Landsteiner has been recognised as *privat-docent* of Pathological Anatomy and Dr. Ernst von Czyhlarz as *privat-docent* of Medicine.

THE VICTORIA UNIVERSITY OF MANCHESTER—FACULTY OF MEDICINE.—One of the two open entrance scholarships which were recently founded, each of the value of £100, has been awarded to Mr. W. C. Denniston, B.Sc. It is proposed to offer two similar scholarships—one in arts and one in science—next July.

KING'S COLLEGE MEDICAL SCHOOL.—The following scholarships have been awarded in the faculty of medicine:—Medical entrance, £50: Mr. W. T. Briscoe and Mr. W. D. Sturrock (equal). Sambrooke (science), £100: Mr. E. Gauntlett. Warneford (arts), £100: Mr. J. W. Adamson.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The following scholarships have been awarded as the result of the recent entrance examinations: Senior entrance scholarships (value £75): Mr. G. C. E. Simpson, B.A. Cantab. (St. John's), first; and Mr. F. W. W. Griffin, B.A. Cantab. (King's), and Mr. J. J. Paterson, Cardiff, (equal) second. Junior entrance scholarship (value £150): Mr. T. L. Bomford. Preliminary scientific exhibition (value £50): Mr. H. H. King. Jeaffreson exhibition (value £20): Mr. A. J. S. Fuller, B.A. Cantab.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—The following entrance scholarships for 1903 have been awarded:—Natural science scholarship, £145: Mr. G. E. Oates, St. Paul's School. Natural science scholarships, £78 15*s*: Mr. J. E. L. Johnston, Epsom College and St. Mary's Hospital, and Mr. W. E. Haigh, Bradford Technical College. Natural science scholarship, £52 10*s*: Mr. D. W. Daniels, Wyggeston Schools, Leicester. University scholarships, £63: Mr. W. A. E. Dobbin, University College, Cardiff, and Mr. E. Braton, Portsmouth Grammar School and Caius College, Cambridge. Epsom scholarship: Mr. C. G. Galpin.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The following is a list of awards gained during the summer session, 1902, and winter session, 1902-03, and the summer session, 1903:—Summer session, 1902, and winter session, 1902-03: Livingstone scholar: Mr. W. S. Fenwick. Huxley scholar: Mr. E. J. J. Quirk. University scholar: Mr. R. K. Shepherd. Llewellyn prize (certificate and £25): Mr. P. Rees. Golding prize (certificate and £10): Mr. W. S. Fenwick. Pereira prize (certificate and £5): Mr. L. P. Maitland. Governors' clinical gold medal: Mr. C. F. Day. Huxley medal (with prize of £10): Mr. L. E. M. Smith. Anatomy (senior): prize, Mr. L. E. M. Smith; certificate, Mr. C. F. Rumsey. Anatomy (junior): prize (Steadman), Mr. W. S. Fenwick; prize (school), Mr. P. O'Hart; certificates, Mr. J. G. Hemsted, Mr. A. G. Lacey, Mr. F. Throp, Mr. F. E. Sprawson, and Mr. A. E. Ironside. Biology: prize, Mr. A. H. H. Catt. Chemistry: prize, Mr. E. M. Adam; certificates, Mr. J. H. J. Shaw and Mr. T. J. Hallinan. Physiology (senior): certificates, Mr. L. E. M. Smith and Mr. C. F. Rumsey. Physiology (junior): prize, Mr. W. S. Fenwick; certificate, Mr. G. Padley. Medicine (senior): prize, Mr. P. Rees. Medicine (junior): prizes, Mr. C. H. F. Johnston and Mr. R. K. Shepherd (equal); certificates, Mr. J. W. Evans, Mr. A. G. Reade and Mr. H. H. R. Bayley (equal), and Mr. A. G. Whitaker. Surgery (senior): prize, Mr. P. Rees; certificate, Mr. L. P. Maitland. Surgery (junior): prize, Mr. R. K. Shepherd; certificates, Mr. H. F. Strickland, Mr. J. W. Evans, and Mr. C. H. F. Johnston. Practical medicine: prizes, Mr. J. W. Evans and Mr. R. K. Shepherd; certificates, Mr. H. H. R. Bayley, Mr. C. H. F. Johnston, Mr. A. G. Whitaker, and Mr. C. A. Sampson. Practical chemistry: prize, Mr. W. C. A. Ovey; certificates, Mr. L. B. Glasspole, Mr. L. W. Biscombe, Mr. W. K. Beaman, Mr. A. J. Dainty, Mr. M. N. Goodman, and Mr. J. G. Hemsted. Psychological medicine: prize, Mr. P. Rees; certificate, Mr. L. P. Maitland. Ophthalmology: prize, Mr. P. Rees. Practical midwifery: prize, Mr. P. Rees; certificates, Mr. P. Gully, Mr. J. W. Evans, and Mr. C. H. F. Johnston and Mr. L. P. Maitland (equal). Midwifery: prize, Mr. P. Rees; certificate, Mr. L. P. Maitland. Pathology: prize, Mr. P. Rees; certificates, Mr. C. H. F. Johnston and Mr. L. P. Maitland. Public health: prize, Mr. H. M. Joseph. Therapeutics: prize, Mr. P. Rees; certificates, Mr. C. H. F. Johnston and Mr. L. P. Maitland. Forensic medicine and toxicology: prize, Mr. P. Rees; certificates, Mr. C. H. F. Johnston and Mr. J. W. Rollings. Materia medica: prize, Mr. F. G. Edholm; certificates, Mr. C. F. Rumsey, Mr. W. C. A. Ovey, Mr. W. K. Beaman, and Mr. S. F. Fouracre. Summer session, 1903:—Practical chemistry: prize, Mr. T. J. Hallinan; certificates, Mr. T. W. Jones, Mr. J. H. J. Shaw, and Mr. K. B. Allan. Midwifery: prize, Mr. R. K. Shepherd; certificates, Mr. J. W. Evans and Mr. A. G. Whitaker. Pathology: prize, Mr. J. W. Evans; certificat , Mr. R. K. Shepherd. Public health: prizes, Mr. C. H. F. Johnston

and Mr. L. P. Maitland (equal). Therapeutics: prize, Mr. H. H. R. Bayley; certificates, Mr. J. W. Evans, Mr. R. K. Shepherd, Mr. A. G. Whitaker, and Mr. W. W. D. Chilcott and Mr. A. G. Reade (equal). Forensic medicine and toxicology: prize, Mr. J. W. Evans; certificates, Mr. R. K. Shepherd, Mr. W. W. D. Chilcott, Mr. A. G. Whitaker, and Mr. L. P. Maitland. Materia medica: prize, Mr. A. K. Taylor; certificates, Mr. W. S. Fenwick, Mr. T. W. Jones, and Mr. F. Butler. Morphology: prize, Mr. A. Dinnis.

"DECAPODS."—A reference to the "decapod" or rapidly starting locomotives was made in THE LANCET of Oct. 10th, p. 1036. The *Engineer* of Oct. 9th states that a "decapod" engine is being tried on the Great Northern Railway and has been placed in service on the heaviest morning and evening trains between King's Cross, Alexandra Palace, and High Barnet. It is said to possess a higher tractive force than any other locomotive which is running.

ANNUAL MEDICAL SERVICE AT ST. PAUL'S.—This service, organised by the Guild of St. Luke, has now been held for many years past. It will take place this year on Wednesday, Oct. 21st, at 7.30 P.M., at St Paul's Cathedral, when the sermon will be preached by the Rev. Prebendary H. Montague Villiers, vicar of St. Paul's, Knightsbridge. As heretofore, all medical practitioners who are graduates or Fellows or Members of the Royal College of Surgeons of England are asked to attend in academical robes. Last year upwards of 1200 medical men were present. The music will be rendered by the London Church Choir Association. Admission to the space under the dome will be by ticket only.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—Advantage was taken of the October meeting of the Gateshead division of the British Medical Association to present to Mr. A. W. Blacklock, M.D., a token of the esteem and regard which are felt for him by his fellow practitioners in the town. Dr. A. Green, chairman of the division, in making the presentation (which consisted of a suitably engraved cigarette case and a purse of gold) said that the health of the recipient not allowing him to continue the arduous work of general practice Dr. Blacklock had recently obtained the post of assistant medical officer in the Gateshead workhouse and his colleagues could not let the occasion pass without some recognition of the straightforward and honourable practice of Dr. Blacklock. He had the sympathy and regard of every one of his colleagues as was proved by the hearty response to the appeal. Dr. H. J. Gilbert, as an old friend of the recipient, made a very happy speech in which he touched on the fortitude of Dr. Blacklock in circumstances which would have prostrated most men. Dr. Blacklock, in replying, said that this presentation, which was unique in the medical annals of the town, touched him very deeply, not so much from the material side as from the fact that his conduct during nearly 30 years of practice had met with the approval of the profession in the town. As for the fortitude which had been alluded to, he thought it but the ordinary duty of every man to present a cheerful front to adverse circumstances. The thanks of the Gateshead practitioners are due to Dr. T. M. Kimpster for carrying to such a successful conclusion this testimonial. Nearly every medical man in the town contributed to the fund.—On Oct. 5th Mr. Francis Ignatius Maunsell, L.R.C.P., L.R.C.S. Irel., was presented with a marble clock and a pair of bronzes as a mark of respect and esteem by the workmen of New Tredegar and district.

BOOKS, ETC., RECEIVED.

AELEN, GEORGE, 156, Charing-cross-road, W.C.
The Pedagogue at Play. By G. M. A. Hewett, author of "The Open-air Boy." Price 6*s*.
The Animal Game-book. By Harry Rountree. Price 3*s*. 6*d*.

BRANDOW PRINTING CO. (FORT ORANGE PRESS), Albany, N.Y.
Scheme for the Differential Testing of Nerves and Muscles. For Use in Diagnosis. By J. Montgomery Mosher, A.M., M.D., Clinical Professor of Insanity, Neurology, and Electro-therapeutics, Albany Medical College. Price not stated.

BRAUMÜLLER, WILHELM, Wien und Leipzig.
Der Arzt und Philosoph Asklepiades von Bithynien. Historisch-kritische Studie von Dr. Hans v. Vilas, Römerbad, Steiermark. K2., or M1.80.

CHAPMAN AND HALL, LIMITED, London.
Mankind in the Making. By H. G. Wells. Price not stated.

CHURCHILL, J. & A., 7, Great Marlborough-street, W.
A Short Practice of Midwifery. By Henry Jellett, B.A., M.D., B.Ch., B.A.O. (Dublin University), F.R.C.P.I., L.M. With a Preface by W. J. Smyly, M.D., F.R.C.P.I. Fourth edition, revised. Price 8*s*. 6*d*.
Diseases of Women. By Alfred Lewis Galabin, M.A., M.D., F.R.C.P. Sixth edition, much enlarged. Price 16*s*. net.

EGELING'S BOEKHANDEL (NAAML. VENN.), Amsterdam.
Het Pollen-Asthma. (De z.g.n. Hooikoorts.) Deszelfs verschijnselen, oorzaken en behandeling. Door Dr. J. E. Alberts, Arts te Amsterdam. Price not stated.

FISCHER, GUSTAV, Jena.
Die Mitbewegungen bei Gesunden, Nerven- und Geisteskranken. Von Dr. Otfrid Foerster, Assistent des Laboratoriums der Psychiatrischen Klinik der Universität Breslau, Privatdocent an der Universität. Price M1.50.
Allgemeine Physiologie. Von Max Verworn, Dr. Med. et Phil., Professor der Physiologie und Direktor des Physiologischen Instituts der Universität Göttingen. Vierte, neubearbeitete Auflage. Price, paper M.15, cloth M.17.

FRAMPTON, E. J., Bournemouth.
Where Shall I Send My Patient? A Guide for Medical Practitioners and Book of Reference to the Health Resorts and Institutions for Patients of Great Britain. (Printed for the Association of Medical Men receiving Resident Patients.) Price not stated.

GRIFFIN, CHARLES, AND COMPANY, Limited, Exeter-street, Strand, W.C.
Animal and Vegetable Fixed Oils, Fats, Butters, and Waxes: their Preparation and Properties, and the Manufacture therefrom of Candles, Soaps, and other Products. By C. R. Alder Wright, D.Sc. Lond., B.Sc. Vict., F.R.S. Second edition, edited and partly rewritten by C. Ainsworth Mitchell, B.A. Oxon., F.I.C. Price 25*s*. net.

HARTUNG UND SOHN, H., Leipzig.
Diät-Vorschriften für Gesunde und Kranke jeder Art. Von Dr. J. Borntraeger, Regierungs- und Medizinalrat in Danzig. Vierte verbesserte und erweitete Auflage. Price M2.
Die Gallensteinkrankheit, ihre Ursachen, Pathologie, Diagnose, und Therapie. Von Spezialarzt Dr. F. Schilling, Leipzig. Price M1.80.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.
Adeno-Myome des Uterus. Von Thomas S. Cullen, Hülfsprofessor der Gynäkologie an der Johns Hopkins-Universität. Price M.2 40.

JOHN BALE, SONS, AND DANIELSSON, Limited, 83-89, Great Titchfield-street, W.
Studies in Laboratory Work. By C. W. Daniels, M.B., M.R.C.S., late Medical Superintendent of the London School of Tropical Medicine, Director of the Institute for Medical Research, Federated Malay States. Price 15*s*. net.

KARGER, S., Karlstrasse, 15, Berlin, N.W.
Handbuch der Pathologischen Anatomie des Nervensystems. Herausgegeben von Dr. E. Flautau in Warschau, Priv.-Doc., Dr. L. Jacobsohn in Berlin, und Priv.-Doc. Dr. L. Minor in Moskau. Abtheilung II., M10; Abtheilungen III., IV., und V. M14 pro Band.

LONGMANS, GREEN, AND CO., London. (Published for the University Press of Liverpool.)
The Thompson Yates and Johnston Laboratories Report. Vol. V. (New Series.) Part I. (August, 1903.) Price not stated.
A Manual of Pathology. By Joseph Coats, M.D., late Professor of Pathology in the University of Glasgow. Fifth edition. Revised throughout by L. R. Sutherland, M.B., Professor of Pathology in the University of St. Andrews. Price 28*s*. net.

MATHEW AND CO., JAMES P., Dundee.
The Meal-Poke: University of St. Andrews, University College, Dundee. Edited by H. Bellyse Baildon, M.A., Ph.D., and R. Cochrane Buist, M.A., M.D., for the Committee of the Students' Union Bazaar. Price not stated.

MURRAY, JOHN, 50A, Albemarle-street, W.
Individual Immortality. By E. M. Caillard, Author of "Progressive Revelation," &c. Price 3*s*. 6*d*. net.

OLIVER AND BOYD, Edinburgh.
Gynæcological Nursing. By Netta Stewart, Sister in the Extra-mural Gynæcological Wards of the Royal Infirmary, Edinburgh. Price 2*s*. 6*d*.

REBMAN, LIMITED, 129, Shaftesbury-avenue, W.C.
A System of Physiologic Therapeutics. Edited by Solomon Solis Cohen, A.M., M.D. Vol. VIII. Rest; Mental Therapeutics; Suggestion. By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia. Price 12*s*. 6*d*. net.

ROBERTSON, W. G. AITCHISON, 26, Minto-street, Edinburgh.
Contributions to the Physiology of Digestion and to Dietetics. By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E., F.R.S.E. Price not stated.

SAUNDERS, W. B., AND CO., Philadelphia, New York, and London.
A Text-book of Obstetrics. By J. Clarence Webster, M.D. Edin., F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynæcology in Rush Medical College, in affiliation with the University of Chicago.
A Text-book of Operative Surgery. Written for Students and Practitioners. By Warren Stone Bickham, Phar.M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York.

TAYLOR AND FRANCIS, Red Lion-court, Fleet-street, E.C.
University College, London. (University of London.) Calendar. Session MDCCCCIII.-MDCCCCIV. Price not stated.

TREAT, E. B., AND CO., 241-243, West 23rd-street, New York.
Transactions of the American Pediatric Society. Fourteenth Session. Held at Boston, May 26th, 27th, and 28th, 1902. With

Addenda from the Thirteenth Session and an Index. Vols. I.—XIV., inclusive. Edited by Walter Lester Carr, M.D. Price not stated.

WRIGHT, JOHN, AND CO., Bristol.

The Swedish System of Physical Education: its Medical and General Aspects. Expanded from a Paper read before Members of the British Medical Association. By Theodora Johnson, Principal of the Swedish Institute, Clifton, Bristol. Second edition. Reprint. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BACQUE, WILLIAM JULES, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the No. 2 District by the Bath Board of Guardians.

BOWLBY, ANTHONY A., C.M.G., has been elected Surgeon to St. Bartholomew's Hospital.

BOYCOTT, A. E., M.B., M.Ch. Oxon., has been appointed Gordon Lecturer in Experimental Pathology to Guy's Hospital Medical School.

EDWARDS, ROBERT THOS., M.R.C.S., L.R.C.P., has been appointed Resident Medical Officer to the Aberystwyth Infirmary and the Cardiganshire General Hospital.

FLYNN, IGNATIUS JOSEPH, M.D. Irel., has been appointed Officer of Health at Bunbury, West Australia.

HARRIS, JOHN, M.D. Aberd., J.P., has been appointed a Member of the Licensing Court for the District of Newcastle, New South Wales, Australia.

HENRY, CLAUD DAWSON, M.B., B.S. Camb., has been appointed Police Surgeon at Wellington, New Zealand.

KNIGHT, WILFRED, M.B., L.R.C.P.E., has been appointed a Resident Medical Officer to the Durban Hospital, Natal.

LLEWELLYN, REES FRANK, M.B., M.Ch. Syd., has been appointed Government Medical Officer and Vaccinator at Braidwood, New South Wales, Australia.

MOULD, G. W., M.R.C.S., L.S.A., has been appointed Consulting Medical Officer and Superintendent of the Welsh houses connected with the Royal Asylum, Cheadle.

MOULD, PHILIP G., M.R.C.S., L.R.C.P. Lond., has been appointed Second Assistant Medical Officer, Royal Asylum, Cheadle.

NASH, HON. J. B., M.D. Edin., M.L.C., has been appointed a Director of the Sydney Hospital, New South Wales, Australia.

PARKHURST, ARTHUR USK, L.S.A. Lond., has been appointed Junior House Surgeon at the Carnarvon Hospital, Kimberley.

RENNIE, G. E., M.D. Lond., has been appointed Director of the Carrington Hospital, Camden, New South Wales, Australia.

SANKEY, R. H., M.A. Oxon., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician to the Radcliffe Infirmary, Oxford.

SCOWCROFT, WALTER, M.R.C.S., L.R.C.P. Irel., has been appointed Resident Superintendent of the Royal Asylum, Cheadle.

SCURFIELD, HAROLD, M.D. Edin., has been appointed Medical Officer of Health for the City of Sheffield.

SMYTH, S. R., L.R.C.S.I., L.K.Q.C.P.I., has been appointed District Medical Officer and Public Vaccinator at Moora, West Australia.

STIFF, H. H., M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshops Act for the Bury St. Edmunds District of the County of Suffolk.

SUTCLIFFE, JOHN, M.R.C.S., L.R.C.P. Edin., has been appointed Senior Assistant Medical Officer, Royal Asylum, Cheadle.

WATERHOUSE, A. T., M.B., B.Ch. Oxon, L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Radcliffe Infirmary, Oxford.

WEST, SAMUEL, M.D. Oxon., has been elected Physician to St. Bartholomew's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD UNION INFIRMARY, WORKHOUSE, AND SANATORIUM.—Resident Assistant Medical Officer. Salary £120 per annum, with board, washing, and apartments.

BRIDGNORTH AND SOUTH SHROPSHIRE INFIRMARY.—House Surgeon. Salary £100, with board and lodgings.

BRITISH HOME AND HOSPITAL FOR INCURABLES, Streatham, S.W.—Medical Officer. Salary £120 per annum.

CARDIFF INFIRMARY.—Assistant House Surgeon. Also Assistant House Physician. Each for six months. Salaries at rate of £75 per annum, with board, washing, and apartments.

CHELSEA HOSPITAL, Cale-street, S.W.—First Assistant Medical Officer. Salary £120 a year, rising to £150, with board, apartments, coal, gas, and washing.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Physician.

CHESHIRE, ROYAL ASYLUM, Cheadle.—Third Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, attendance, &c.

CHESTERFIELD UNION.—Medical Officer and Public Vaccinator. Salary and fees estimated to produce £220 per annum.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon, unmarried. Salary £120, with board and lodging.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—House Physician and House Surgeon. Salary £80 respectively, with board, residence, and washing. Also Assistant House Surgeon. Salary £70, with board, residence, and washing.

GLASGOW DISTRICT ASYLUM, Woodilee, Lenzie.—Junior Assistant Medical Officer. Salary £125, with board, lodging, washing &c.

GOSFORTH CITY ASYLUM, Newcastle-upon-Tyne. Assistant Medical Officer, unmarried. Salary £140 a year, rising to £160, with apartments, board, and laundry.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physician, for six months. Honorarium of £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.

HOSPITAL FOR WOMEN, Soho-square, London, W.—House Physician for six months. Salary £30.

LISTER INSTITUTE OF PREVENTIVE MEDICINE, Chelsea-gardens, S.W.—Studentship for Research in the Department of Bacteriology. Value £150.

LONDON COUNTY COUNCIL.—Medical Officer to employés in the Metropolitan Boroughs of St. Marylebone and Paddington.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham-hill-road.—Honorary Surgeon for Children.

MIDDLESEX HOSPITAL, W.—Second Assistant in the Clinical and Bacteriological Laboratories. Salary £100 per annum.

NEW HOSPITAL FOR WOMEN, Euston-road.—Clinical Assistant (female).

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—House Physician for six months. Salary at rate of £30 per annum, with board, residence, and laundry. Also Assistant Physician.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board and residence.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100, with board, lodging, and washing.

PUBLIC DISPENSARY, 59, Stanhope-street, Clare-market. Resident Medical Officer, unmarried. Salary £105 per annum, with apartments, coal, and gas.

ROUSAY AND EGILSHAY, PARISH OF.—Resident Medical Officer. Salary £51 per annum.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Surgeon. Salary £100 per annum, with rooms, board, and washing.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SMYRNA MISSION AND HOSPITAL (CHURCH OF SCOTLAND JEWISH MISSION).—Medical Missionary. Salary £250, with dwelling-house.

ST. OLAVE'S UNION, SHIRLEY SCHOOLS, Wickham-road, near Croydon, Surrey.—Medical Officer. Salary £150 per annum. Dentist. Salary £50 per annum.

SOUTH UIST PARISH (NORTHERN DIVISION).—Medical Officer. Salary £70.

SUSSEX COUNTY HOSPITAL, Brighton.—House Surgeon, unmarried. Salary £140 per annum, with board and residence.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £50 per annum, with board, residence, and laundry.

WESTMINSTER HOSPITAL.—Assistant Pathologist and Curator of the Museum. Salary 100 guineas a year.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Physician. Salary £100 per annum, with board, lodging, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory Act at Bray, in the county of Wicklow, and at Greenoold, in the county of Lancaster.

Births, Marriages, and Deaths.

BIRTHS.

BYERS.—On Oct. 7th, at Dreenagh House, Belfast, the wife of Professor Byers, M.D., of a son.

VINTER.—On Oct. 12th, at Udal Garth, Torpoint, R.S.O., Cornwall, the wife of Sydney G. Vinter, M.R.C.S., of a daughter.

WINDSOR.—On Oct. 9th, the wife of Charles William Windsor, M.A., M.D. Cantab., Royston, Herts, of a son.

MARRIAGES.

LOCK—GRAVES.—On Oct. 13th, at St. Giles' Church, Cambridge, by the Rev. Canon Cunningham, D.D., Fellow of Trinity College, assisted by the Rev. A. J. Hunter, M.A., rector of Swanton Morley and Rural Dean, and the Rev. J. F. Buxton, M.A., vicar of the parish, John Lewis Lock, M.A., M.B., B.C. Cantab., of Uxbridge, eldest son of the Rev. J. B. Lock, Fellow and Bursar of Caius College, to Beatrice Marion, youngest daughter of the Rev. C. E. Graves, Fellow and Tutor of St. John's College, Cambridge.

MOUNSEY—RUSSELL.—On Oct. 7th, at Sandyford parish church, Glasgow, by the Rev. D. H. Paterson, Airdrie, assisted by the Rev. James A. Campbell, Troqueer, Dumfries, George Harold Mounsey, M.B., C.M. Edin., 49, Calthorpe-road, Edgbaston, Birmingham, to Helen Greenlees, eldest daughter of James Russell, Banker, Airdrie, N.B.

DEATHS.

SYMES.—On Oct. 13th, William Sandham Symes, L.R.C.P., L.R.C.S. Irel., of The Terrace, Chesterfield, in his 54th year.

TUKE.—On Oct. 12th, at St. Thomas's Home, St. Thomas's Hospital, George J. A. Tuke, Major, R.A.M.C., in his 46th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CORDITE-EATING.

THE October number of the *Journal of the Royal Army Medical Corps* contains an interesting article by Major J. W. Jennings, R.A.M.C., on what he believes to be a hitherto unrecorded form of intoxication—namely, cordite-eating by soldiers. His attention was first called to the subject during the recent operations in South Africa and as an experiment he tried one-fourth of a strand from a Lee-Metford cartridge which he kept in his mouth and sucked for two minutes. On being then taken out its diminution in size was scarcely appreciable and yet he experienced the most racking splitting headache that he ever felt in his life, together with hammering and ringing noises in his ears; the headache lasted quite 36 hours.

Cordite has a sweet, pleasant, pungent taste and is only slightly soluble in the mouth. Its physiological action is similar to, but slower than, amyl nitrite—namely, throbbing headache, flushing of the face, visible carotid pulsation, giddiness, disordered action of the heart, &c. Roughly, its percentage composition may be said to be nitro-glycerine 58 parts, gun-cotton 37 parts, and mineral jelly five parts. Acetone is used as the solvent but does not enter largely into its composition. The thick pasty mass is then forced through a die under heavy pressure. Each Lee-Metford cartridge contains 60 cylindrical strands of cordite and each strand measures one and a quarter inches in length and one-twenty-fifth of an inch in thickness. The following train of symptoms are commonly presented by a man who has eaten cordite. The conjunctivæ become of a yellowish tinge and the eyes assume a glazed appearance, giving to the face a wild expression. The features are drawn. The skin of the body presents a dirty yellowish or brownish or sallow tint. Constipation and occasional slight fever prevail, periodical or almost constant headaches, loss of appetite, marked thirst, dulling of mental faculties, and great desire to sleep. When taken in stick form (from four to ten or more strands) cordite rapidly produces a violent splitting headache in the temporal and occipital regions, the headache continuing all day.

Taken in solution, as with tea, cordite appears to produce an almost immediate exhilarating effect. If many have partaken of the beverage all begin talking at once, seemingly anxious to inform each other of everything that happened to them since their birth. This condition lasts perhaps two or three hours, when sleep overcomes them. If beer is in addition consumed during the excited state it produces quarrelsomeness and leads to acts of violence. If the cordite is mixed with beer and consumed as an ordinary drink a glassful will produce intoxication in a man who could normally consume perhaps as much as from four to six pints without exhibiting a trace of having done so. From five to ten strands taken with beer or tea produce heavy sleep followed by a stupor lasting approximately from five to 12 hours. While in this state the man is with difficulty awakened or persuaded to rise. The awakening is accompanied by a severe, dull, boring headache, slight facial muscular twitchings, and protrusion of the eyes. When fully awake the man often seems not to realise his surroundings and a question may have to be repeated two or three times before he understands it. Major Jennings gives the two following examples of the extraordinary effects produced by cordite. In consequence of some trouble with the native assistants the caterer of the non-commissioned officers' mess of an irregular cavalry corps had no food ready when supper-time arrived but he nevertheless rang the supper-bell. The men came and took their seats before an empty table, whereupon the caterer told them with the utmost gravity that there was a nice large roast on the table and everything else which constituted a good supper, adding, "I know you can't see, but I can, so dig in." The non-commissioned officers made their supper off some tinned food which the canteen sergeant provided and the caterer slept the sleep of cordite. In another case a dozen or more men having taken their usual dose of beer and cordite were all talking and shouting at once, when one of them proposed a war dance. It was a still though bitterly cold night and the men were in their underclothing. In spite of this they took their candles outside their tents, placed them upon the ground, and proceeded to execute a series of antics which clearly indicated them to be under the influence of some drug. No amount of persuasion on the part of the non-commissioned officers or anyone else had any effect on them. They kept it up for 20 minutes or half an hour until they sank exhausted on the ground. In his article Major Jennings quotes at considerable length a series of statements made both to him and to Lieutenant Morton, R.A.M.C., by soldiers who had been eating cordite.

WANTED—A PLACE FOR AN UNQUALIFED ASSISTANT.

"X. Y. Z." writes:—

"Can you give me any advice as to getting employment for an excellent assistant who has been with me 17 years and now is refused situations because he is 60 years of age? He is a married man and leaves me because I have now a partner."

The General Medical Council has clearly defined the uses to which it is permissible to put unqualified assistants and by so doing has made the demand for their aid very limited. We have always felt very sympathetic towards the men who were thus thrown out of employ, even while we recognised that the action of the General Medical Council was good and taken in the interests of the medical profession and public alike. If, however, a medical man is looking for an unqualified assistant we think that 17 years of excellent character held by "X. Y. Z.'s" late employé might well counterbalance his weight of years. After all, a man of 60 has many years of good work left in him, and it is quite likely that anyone who accepted this veteran's services might find that in doing a kind action he had benefited himself.

THE WILLIAM CADGE MEMORIAL.

IN THE LANCET of Sept. 26th, p. 898, we published an appeal for subscriptions towards the erection of a memorial to be placed in the cathedral at Norwich to the memory of the late Mr. William Cadge. The following is a list of those who have already responded to the appeal:—

LONDON:—
Lord Lister.
Sir William H. Broadbent, Bart., K.C.V.O.
Sir Thomas Smith, Bart., K.C.V.O.
Sir Anderson Critchett.
Sir Henry G. Howse.
Sir Hugh R. Beevor.
Mr. Jonathan Hutchinson.
Mr. Reginald Harrison.
Mr. Christopher Heath.
Mrs. E. Garrett Anderson.
Mr. Rickman J. Godlee.
Mr. A. Pearce Gould.
Dr. Robert Barnes.
Professor Howard Marsh.
Mr John Langton.
Mr. H. T. Butlin.
Mr. A. W. Mayo Robson.
Brigade-Surgeon-Lieutenant-Colonel D. T. Keegan, I.M.S. (retired).
Dr. H. Charlton Bastian.
Dr Constantine Holman.
Dr. John H. Galton.
Dr. Ernest W. White.
Dr. E. A. White.
Dr. T. Duke.
Mr. G. S. Bates.
Dr. Charles Firth, Gravesend.
Dr. Dudley W. Buxton.
Mr. A. E. J. Barker.
Mr. H. Work Dodd.

NORWICH:—
Sir Peter Eade.
Sir Frederic Bateman.
Dr. M. Beverley.
Dr. S. J. Barton
Mr. H. S. Robinson.
Mr. S. H. Burton.
Dr. S. H. Long.
Dr. F. W. Burton-Fanning.
Mr. Donald D. Day.
Mr. H. A. Ballance.
Mr. W. H. Day.
Mr. Charles E. Muriel.
Mr. Joseph Allen.
Mr. F. Long.
Mr. G. R. Master.
Mr. H. C. Nance.
Mr. T. H. Morse.
Dr. J. Fielding.
Dr. H. Watson.
Mr. F. Preston.
Dr. H. Cooper Pattin.
Mr. H. F. White.
Mr. E. W. Everett.
Mr. H. Watson Turner.

NORFOLK:—
Mr. Mayo Yarmouth.
Mr. W. E. Wyllys, ,,
Mr. W. J. Wyllys, ,,
Mr. H. J. M. Wyllys, ,,
Dr. J. Ryley, ,,
Dr. T. Lettis, ,,
Dr. H. Collier, ,,
Mr. R. B. Marriott, Swaffham.
Mr. E. V. Perry, Reepham.
Dr. R. McKelvie, Blofield.
Mr. D. W. Hughes, Wymondham.
Mr. W. E. Soffe, Scarning.
Dr. T. B. Dyer, Brundall.
Dr. Pembroke R. J. B. Minns, Thetford.
Mr. Hugh Taylor, Wroxham.
Mr. C. D. Fenn, Diss.
Dr. H. Mallins, Watton.
Mr. T. L. Lack, Hingham.
Mr. E. G. Ellis, Attleborough.
Mr. W. H. Griffith-Williams, Mattishall.
Dr. C. A. O. Owens, Long Stratton.
Mr. F. Clowes, Stalham.
Dr. S. Hamill, Burnham Market.

SUFFOLK—
Mr. F. S. Worthington, Lowestoft.
Mr. J. C. Worthington, ,,
Mr. H. B. Walker, ,,
Mr. W. A. Shann, ,,
Dr. M. L. Hepburn, ,,
Mr. W. M. Crowfoot, Beccles.
Mr. P. J. L. Morris, Halesworth.
Dr. Edgar G. Barnes, Eye.
Dr. W. A. Elliston, Ipswich.
Dr. J. C. Thresh, Chelmsford, Essex.
Professor John Chiene, C.B., Edinburgh.
Mr. T. W. Drinkwater, Edinburgh.
Professor T. Clifford Allbutt, Cambridge.
Dr. Joseph Griffiths, Cambridge.
Mr. F. Page, Newcastle.
Mr. Baumgartner, Newcastle.
Dr. T. D. Griffiths, Swansea.
Mr. Evan Jones, Aberdare.
Mr. H. Littlewood, Leeds.
Mr. C. P. Hooker, Cirencester.
Dr. F. A. Mills, Cookham.
Dr. J. M. Jay, Chippenham.
Dr. W. G. Vawdrey Lush, Weymouth.
Dr. H. Briggs, Southport.
Dr. Walker, Peterborough.
Dr. Bridgwater, Uckfield.

The list will be closed at the end of this month. Subscriptions may be sent to Dr. M. Beverley, Norwich.

THE MOTHER'S FRIEND.

MR. S. BRIGHOUSE concluded an inquest at Earlestown on Sept. 29th upon the body of the seven weeks old son of a joiner and his wife who met with his death in the following circumstances. The baby was ailing and the grandmother having diagnosed the cause of his trouble as "wind" sent a sister of the child's mother to buy "two pennyworth of Mother's Friend." Evidence was given by a druggist from whom the family in question usually purchased it that "Mother's Friend" was sold by every druggist in the town and that they all made it up differently. It was also known as "Infant's Preservative," "Children's Mixture" and "Infant's Cordial." He for his part when asked for "Mother's Friend" sold a mixture containing one grain of bicarbonate of potassium, one grain of bromide of sodium, and water, flavoured with aniseed. On the occasion in question, however, the aunt of the deceased not being directed to go to any particular shop went to the nearest at hand, kept by a Mrs. Mee. Mrs. Mee was out but Mr. Mee took the bottle which had

been given to the girl, poured into it something which he took from a bottle on the counter, and handed it back without affixing any label or giving her any directions. The medicine sent out thus was analysed and was found to consist of syrup of poppies flavoured with aniseed and contained about one fifteenth of a grain of morphine to the fluid drachm. The grandmother directed half a teaspoonful to be given to the infant and some such amount was apparently administered without dilution. Shortly afterwards the child's condition aroused anxiety; a medical man was summoned but the child died in spite of his efforts in the course of half an hour after his arrival. Post-mortem examination showed a congested lung and other conditions upon which stress was laid by the legal representative of Mr. Mee. It was a case, however, which exemplified the importance of medical evidence as to symptoms observed before death. The medical evidence as to these pointed to narcotic poisoning and the jury found a verdict to the effect that the child's death was accelerated by the administration of the "Mother's Friend," adding the opinion that Mr. Mee was censurably negligent in his manner of serving it to his customers. The case may form the subject of future legal inquiry and therefore it would be improper to comment upon it further at present.

MOTOR-CARS FOR MEDICAL MEN.

To the Editors of THE LANCET.

SIRS,—In response to your request for information from medical men who have adopted motor-cars for their work I beg to give you my experience in a country practice with the average journey. Since giving up horses 15 months ago I have kept a record of expenses, together with data of any mechanical troubles in connexion with the daily use of the car during this period. In the first week of August, 1902, my car was delivered to me. It is a 6 h.p. Benz with a single cylinder engine in front and is gear-driven. The transmission of power from engine to gear-box is by belt instead of the more usual clutch. With reference to this somewhat vexed question as to the advisability or otherwise of belt transmission my experience with the latter has been entirely satisfactory. Within three months of constant use the belt had lost its initial stretch and had been shortened to that amount on two occasions and since then has only once required attention, although I have never used any belt dressing or treated it in any way. The belt I use is the particular make supplied with the car and I am inclined to the opinion that this type of belt is a peculiarly good one. There is an absence of jerking at starting with this means of transmission which compares very favourably with the clutch method, and more important still from a medical man's standpoint it is absolutely reliable, for if the belt should by any chance break, a spare one, which, costing as it does but a few shillings, should always be carried in the car, could be fitted in a few minutes. During the first twelve months I covered a distance of over 5000 miles, using the car for night and day journeys and depending solely upon a bicycle as an auxiliary help. During this period I have never failed to reach a patient or to return home at the expected time. I have not once been delayed upon the road beyond a few minutes to make some small adjustment. My repair and adjustment account comes to under £10 and my petrol bill to under £20. The other expenses for the 12 months consist of lubricating oil, £2, and recharging of accumulators about 18s. When my car was delivered to me neither myself nor my man had had any mechanical experience whatever. The mechanic who brought the car down remained with me a week and at the end of that time one had acquired a fair knowledge of the mechanism, and within a few weeks the driving, which at first is somewhat of a strain, had become quite automatic. From the experiences of several other medical men in this neighbourhood who use identical cars I find that my record, although perhaps exceptionally free from troubles of any kind, is not very different to their own. For the country medical man the motor-car has revolutionised work. The long monotonous journeys of the old days have become short and pleasant. The saving of time is enormous and the exhilaration produced by this mode of transit, together with the mental relief which attention to the driving produces, act as a very efficient tonic and mental stimulus to the very frequently tired and worried medical man.

I am, Sirs, yours faithfully,

W. H. FAWCETT, F.R.C.S. Edin.

Wimborne, Dorset, Oct. 12th, 1903.

P.S.—I should mention that I start my fifteenth month with new back tyres costing £7, and new chains and sprocket wheels costing £3 7s. I see no reason to anticipate any other renewals for a considerable time.

"THE CIGARETTE CRAZE."

To the Editors of THE LANCET.

SIRS,—In the *Daily Telegraph* of last Saturday there was an interesting paragraph headed "Little Mary" and Dietetics in which the writer, relative to Mr. Barrie's new play, gives the opinions of some physicians as to the dietetics of the present day and one expert is said to attribute many ills to "the cigarette craze." While I am certain excessive cigarette smoking is responsible for many nerve troubles I should be glad, Sirs, if you or any of your readers would give me any explanation why the cigarette, more than the pipe, should be popularly supposed to be so harmful. The tobacco in a cigarette is much milder than one could smoke in a pipe, as every smoker knows that a very mild tobacco is too hot in a pipe and a man who smokes nine or ten cigarettes in a day does not smoke half an ounce of tobacco. Another question I would venture to ask, Are Egyptian cigarettes (i.e., Turkish tobacco) stronger than those made with Virginian tobacco? I usually smoke Egyptian and fancy them milder, but most of my friends assert that the Virginian tobacco is less injurious to the nerves.

I must apologise for trespassing so much on your space but I think many are, as

I am, Sirs, yours faithfully,

Oct. 6th, 1903. DOUBTFUL.

*** All things being equal we do not see why, as our correspondent asks, the cigarette should be more harmful than the cigar or the pipe. There are, however, some points to bear in mind in regard to the method of smoking cigarettes which probably account for mischievous results. Of course, the tobacco of a cigarette is often of a very cheap and inferior quality but the smoke of a cigarette is both wittingly (that which is sucked into the mouth) and unwittingly (that which is drawn into the nostrils from the burning tip) inhaled. We are inclined to believe that inhaling the smoke, which may be done much more comfortably with the cigarette than with the pipe or cigar, and persistently keeping the smouldering end immediately under the nostrils and seldom removing it are more responsible for the injurious effects of cigarette-smoking than anything else. Virginian tobacco seldom contains more than 1 per cent. of nicotine, while it is probable that Dubec, the substance of both Egyptian and Turkish cigarettes, contains a considerably higher proportion.—ED. L.

THE PRICE OF A BATH AT HOTELS.

To the Editors of THE LANCET.

SIRS,—It may interest you to know with reference to your recent remarks concerning the charges at hotels for baths that at the Charterhouse Hotel (where I have stayed for a while of late) the tariff provides for hot, cold, douche, and spray baths *entirely free of all charge* to its customers. To the proprietors is due the credit of creating a departure from what has been a grievance of long standing in our metropolitan hotels generally.

I am, Sirs, yours faithfully,

J. TREEVE EDGCOME,

Oct. 11th, 1903. Barrister-at-law of the Inner Temple.

M.D. Vict.—We think that our correspondent must be referring to the euthermic coverlet which was noticed in THE LANCET of Jan. 17th, 1903, p. 212. It was designed by Dr. Francis Bond of Gloucester and made by the Sanitary Economic Association, Limited, of Station-road in that city.

J. D.—Surgical Bandaging and Dressings, by W. Johnson Smith, F.R.C.S. (London: The Scientific Press); Heath's Minor Surgery and Bandaging, twelfth edition, 1901; and Pye's Surgical Handicraft, will be found useful by our correspondent.

H. G. F.—We cannot make use of our correspondent's information until he has forwarded to us his name and address.

Mr. G. W. Thornhill and Mr. L. W. Lang.—Our correspondents should consult their usual medical attendants.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 15th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Oct. 9	29·52	W.	0·30	98	60	51	51	53	Fine
" 10	29·89	W.	0·07	95	60	44	44	45	Raining
" 11	29·61	S.E.	0·12	65	60	45	52	53	Raining
" 12	29·07	S.W.	1·24	100	63	53	58	60	Fine
" 13	29·45	S.W.	0·40	98	60	51	50	53	Cloudy
" 14	29·73	S.W.	...	74	60	51	53	56	Cloudy
" 15	29·47	W.	0·27	101	60	53	51	53	Cloudy

During the week marked copies of the following newspapers have been received: *Daily Mail, Standard, Burnley Express, Globe, Bradford Observer, Wigan Examiner, Glasgow Herald, Scotsman, Lincoln Herald, Windsor and Eton Express, Derbyshire Courier, Manchester Weekly Chronicle, People's Friend, Darlington Echo, Hull Times, Yorkshire Observer, Manchester Despatch, Sunday Times, Liverpool Journal of Commerce, Oban Times, Reading Mercury, Times of India, Aberdeen Weekly Free Press, Westminster Gazette, The India-Rubber Journal, Scientific American, Engineer, Medical Mirror (New York), Dumfries and Galloway Saturday Standard, &c.*

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (21st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (22nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (24th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (20th).—PATHOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Card Specimens:—Mr. Hobday: Fracture in Femur of Gorilla.—Dr. H. Thursfield: Sarcoma of Kidney. Papers:—Mr. W. L. H. Duckworth: Fractures in Skeletons of Large Apes.—Mr. G. L. Cheatle: Cancer and Nerve or Trophic Areas.—Mr. R. Johnson: Cartilaginous Body from the Knee-joint.—Mr. S. G. Shattock: An Examination of some of Mr. Freyer's Prostates.—Mr. H. J. Curtis: Congenital Sacral Tumour (Thyroid-dermoid) removed from Girl aged One Year.

CHELSEA CLINICAL SOCIETY (Chelsea Dispensary, Manor-street, King's-road, S.W., adjacent to the Town Hall).—8.30 P.M. The President (Dr. V. Dickinson): Opening Address. Followed by a Smoking Concert.

WEDNESDAY (21st).—ROYAL MICROSCOPICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Mr. C. D. Soar: Exhibition of Drawings and Slides of British Hydrachnidæ. Paper:—Mr. F. W. Millett: Report on the Recent Foraminifera of the Malay Archipelago, Part XV.

MEDICAL SOCIETY, UNIVERSITY COLLEGE (London).—8.30 P.M. Address: Mr. J. Hutchinson: Logic and Leprosy.

FRIDAY (23rd).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Exhibition of Clinical Cases followed by Discussion. Patients will be in attendance from 8 P.M. to 9 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (19th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Saunders: Tuberculous Peritonitis in Children.

TUESDAY (20th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Paget: Surgical Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. Ormerod: Hysteria.

WEDNESDAY (21st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. R. W. Lloyd: The Administration of Anæsthetics. (First Lecture.)

THURSDAY (22nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Keetley: Hernia. (Second Lecture.)

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Mr. Malcolm: The Selection of Cases for Abdominal Section.

CHARING CROSS HOSPITAL.—4 P.M. Dr. Eden: Demonstration of Gynæcological Cases. (Post-Graduate Course.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Dr. R. M. Leslie: Some Modern Methods of the Physical Examination of the Chest.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Mr. E. Corner: The Imperfectly Descended Testicle; the Rationale and Value of the various Methods of Treatment.

FRIDAY (23rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Abraham: Skin Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. Collier: Electrical Testing.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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